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Railway Age

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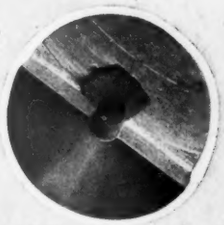

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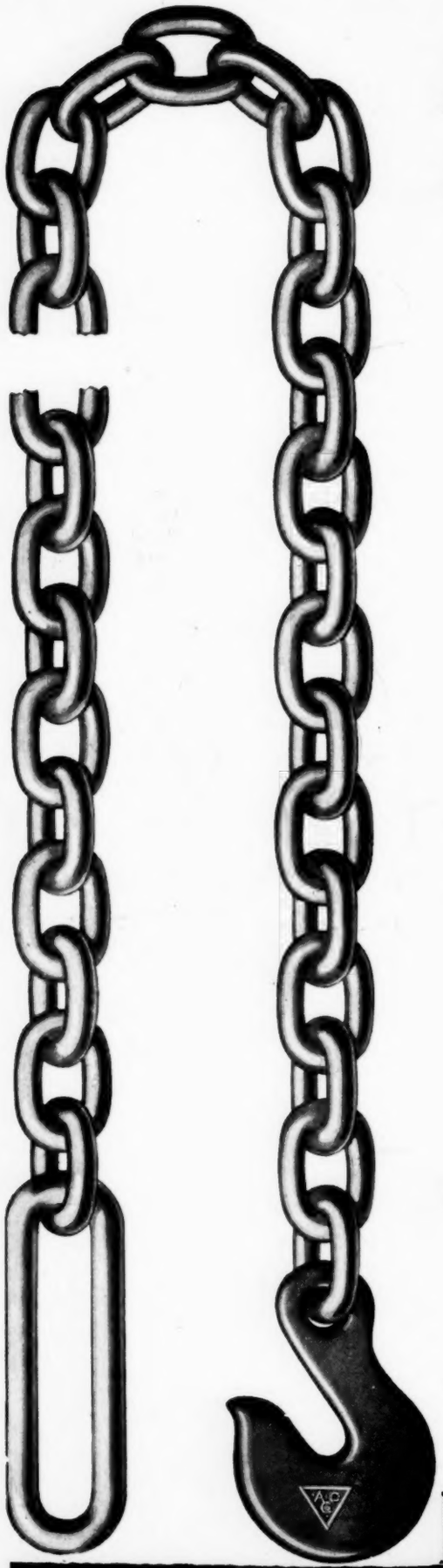

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EDITORIAL

Railway Age

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The Art of Working with Men

"If ninety per cent of the typewriters could be relegated to the scrap pile, and officials instead of being tied to them, as they are now, could go about and get acquainted with the employees, the grievance committee's work would be reduced to a minimum." This statement was made by a railway executive who has had unusual success in administering his department.

Do the Employees Understand?

Reductions in wages and salaries or even prospects of such measures are sure temporarily to cause a serious reduction of the esprit de corps in any organization. Such an agitation affects officers and employees alike for it is disheartening to any man to curtail his plan for saving or his budget of living expenses. The situation becomes aggravated when the individual does not fully appreciate the conditions which enforce the retrenchment. This is a fact which the railroads cannot afford to overlook in carrying out their proposed wage reductions, because efficiency of operation will probably be affected in greater measure by the depressing influence on the subordinate officer and the loyal employee than on those who are affiliated with the stronger labor organizations. If nothing is done to combat this influence, it will serve largely to offset the efforts for increased loyalty which the managements have undertaken since the return to private control. The answer is education in the form of statements explaining in simple language the present financial predicament of the roads as a consequence of a disproportionate relation between revenues and expenses. But this alone will not suffice. It should be made clear that every possible effort is being made to introduce economies which do not entail the reduction of wages. The employee should be given to understand that the management will be pleased to entertain any suggestions which will effect further economies. A reduction in wages is a painful procedure and should be conducted in a spirit that manifests a realization of the sacrifices involved.

Earnings of Individual Trains

The railway manager is confronted under present conditions with two conflicting lines of thought as far as his passenger service is concerned. He is desirous, on the one hand, of taking such steps as he can to restore his road's pre-war passenger service and may even wish to improve on it. On the other hand, he is met with the necessity of reducing expenses and possibly has been called upon to consider the advisability of dropping from his time-table some of the less important and more poorly patronized trains. He is, of course, limited in a measure when it comes to dropping trains because there must always be a minimum service and because the state commissions are not particularly enthusiastic about reductions in service. Nevertheless, in working out the proper solution of his problem, he would be assisted measurably if he had some way in which he could estimate the earnings and cost of his individual trains with a view to seeing if they are carrying their proper share of the burden of increased operating costs. To determine the cost in sufficiently detailed manner, for the purposes here in mind, of running an individual train does not offer great difficulty, inasmuch as to get a rough idea alone is sufficient. To determine its earnings, however, appears on the face to be a rather more complicated matter. Nevertheless, a method has been worked out and is now in use with various modifications on a number of roads which allows for the determination of the earnings of individual trains in a comparatively simple fashion and at comparatively slight expense. The method as it is used on one of the railroads is described on another page of this issue. The article is intended primarily for accounting officers, but we doubt not that the method outlined in it will be of more than ordinary interest to transportation officers also.

Get Out and See the Shipper

Time and again during the period when more traffic was being offered to the railroads than they could handle, their officers were urged to get out and see their shippers. In these circumstances the underlying idea has been to secure better co-operation from the shippers, particularly in the direction of better and heavier car-loading. Generally speaking, this was made a part of the duties of every railway employee who came in contact with or had anything to do with the shippers, the loading, and the moving of cars, etc. Distinct improvements were usually made and the concerted "drive" proved its worth. With the slump in traffic the drive lost its punch, though the benefits to be derived from it are still as important as ever. It can now be rejuvenated to great advantage by making it more applicable to present conditions, i. e., it should be more on lines directed toward the encouragement of increased shipping and heavy car loading. A better understanding of the problems confronting the shipper and the road also can be reached. A good example of a drive adapted to present conditions is afforded by the traffic department of an eastern road. On this line the higher traffic officers who, because of the rush of business and the complexity of their organization, seldom found time in the past to get in actual contact with their shippers were required to spend an entire week brushing up their acquaintanceships with the shippers, both old and prospective. The results more than justified the efforts and the program will be repeated at intervals. The old shippers were benefited and new shippers were interested. This road materially increased its revenues by being a "live wire" in dull times. The business today goes to those who go out and get it.

Preparing For the Future

While the statement that there has not been a time when the railways were more in need of additional facilities may at first thought appear widely at variance with the facts in view of the present acute slump in traffic, its accuracy has been demonstrated repeatedly by the experiences of the last four years and as late as last October. In spite of the large expenditures which were made for increased facilities between 1905 and

1916 the capacity of the roads was taxed more severely during the periods of heavy traffic since 1917 than ever before. While the present is a period of acute depression railway men realize that a return to conditions even approaching normal will bring with it a demand for railway service which can only be satisfied by large increases in facilities. Engineering officers have therefore busied themselves in the preparation of plans for new shops and engine terminals, for freight facilities, for new and heavier bridges, for added tracks and all the various facilities which increase the capacity of a road. Undoubtedly a greater volume of work is covered by plans and estimates now awaiting authorization than at any previous time in the present generation. These plans will be revised and improved while the opportunity offers. Advantage is also being taken of the opportunity to revise standards and to bring them into conformity with the latest developments in materials and equipment, for during periods of widespread activity there is no time for such work, necessary though it is. In the preparation of plans for new work as well as in the revision of standards, the wide-awake engineer is studying intently the latest and most modern equipment and materials at his disposal with a view to incorporating such of them in his designs as will improve his structures. Manufacturers of railway materials and equipment adapted for such use are finding evidences of this interest on the part of engineers in the increased attention which these engineers are giving to their products, and they are securing audiences which it would be impossible to secure when the time of engineers is taken up in the rush incident to a large construction program. Engineers and manufacturers alike can afford to give the closest consideration to the materials and equipment available at the present time in order that the roads may be best prepared to launch their improvement programs when conditions permit.

Railway Problems in England

Government control of the British railways will under present legislation terminate in August. As that time approaches analogy of certain phases of the railway situation in Great Britain with problems which have arisen in this country becomes more apparent. The railways were placed under the Ministry of Transport in 1919 for a period of two years during which time a plan for the final disposition of them was to be worked out. The government has not, however, advanced a plan as yet for meeting this situation, although it is understood that such a bill is now in course of preparation. In the meantime the railway unions have brought out in Parliament a bill of their own. This bill proposes government ownership under the administration of a board of seven commissioners, three to be from the ranks of labor and four representing the government. Purchases of the properties would be effected by an issue of 5 per cent stock and shareholders in the present companies would be paid at the average market price of their shares in 1913, less the average depreciation of railway securities since, or about 30 per cent. It is not generally believed that this labor bill will be enacted into a law. It is understood that the government will advocate the grouping of the carriers into a few large systems but just what methods will be adopted to secure an adequate return to the companies when the present guaranties cease are as yet a matter of conjecture. The British railways are faced with a labor situation in many ways like our own. Wages and working conditions are standardized for the whole country regardless of the varying conditions in each locality. Labor costs have increased tremendously, both because of increased rates and shorter hours. On one system alone, the London & North Western, the increase has been from approximately $30,000,000 (£ to $ at par) in 1913 to approximately $100,000,000 in 1920. Rates are so high now that further increases are not considered advisable. Recent labor troubles due to the alliance of the railway unions with the miners appear to have been avoided for the moment, but the general status of the employees and the companies under private operation presents a problem yet to be solved. It is to be hoped that Parliament will show the same appreciation of the railway problem that our Congress did when it passed the Transportation Act. It must be admitted, nevertheless, that the lack of progress to date is rather disconcerting.

Rebuilding the Railways in France

The second article by Oliver F. Allen dealing with railway reconstruction in France and Belgium, which appears elsewhere in this issue, describes in some detail the problems met with in rebuilding destroyed bridges and tunnels. In many ways the difficulties encountered were peculiar. In rebuilding the Vauxillon tunnel, for instance, it was found that the earth around and over the tunnel was so disintegrated by repeated explosions that the internal pressure had increased to a point where timbering was very difficult and the side walls of the entire tunnel had to be rebuilt much stronger than before. In rebuilding bridges the engineers were greatly hampered by the lack of steel, brick and cut stone. Skilled labor, too, was difficult to obtain. Recourse was had, consequently, to concrete whenever it could be economically employed. In many cases the debris of old masonry structures was crushed and utilized as a part of the concrete mixture. The shortage of labor and the scarcity of lumber made the building of forms slow and expensive. The plan was finally evolved of pouring the concrete piers into a shell made up of concrete blocks. Because of the scarcity of timber, light wooden forms were used for the arches and the concrete poured about a foot thick. After standing about a week this concrete had set sufficiently to support a second pouring and the remaining portion of the arch rings was then poured with a thin layer of pure concrete applied first as a binder. All the new structures were provided with chambers for high explosives so located that their destruction would be a relatively easy matter should military necessity ever again require it. All the new bridges have been built from a point of view of appearance and harmony with the surroundings as well as utility, speed and economy. That all of these phases of the program have been realized and given full consideration in the reconstruction program makes the achievement of the engineers who had the matter in charge even more noteworthy. The next article in this series, which will appear in an early issue of the *Railway Age,* will deal with the rebuilding of the destroyed terminals.

A Good Fuel Record

It should be a source of gratification to every man in railroad service whose efforts are centered on the economical use of fuel, that with an increase of 11.3 per cent in the gross ton miles handled in 1920 as compared with 1919, and an increase of 5.1 per cent in the passenger train miles, the fuel consumption of locomotives in road service showed an increase no larger than 13 per cent. But why, it may be asked, should any increase larger in proportion than the increase in the amount of traffic handled, be subject for congratulation? First, because the switchmen's strike during April and May and the enormous volume of traffic offered during the succeeding months up to November, of necessity made measures for economy minor considerations in comparison with the importance of keeping up with the demands of the country

at any price; and second, because local officers, many of whom for a time were required to take the places of the striking switchmen, were without the assistance of the Fuel Conservation Section of the Railroad Administration, which had just been abolished and for which on many roads no effective successor had been found. The temporary effect of some of these factors is clearly reflected in a month to month comparison of the fuel consumption for 1,000 gross ton miles in freight service. Comparing periods in 1920 with corresponding periods in 1919, there was an increase in the fuel consumption for March of 3.3 per cent, which had further increased in April to 11.2 per cent. Going on to June, a marked improvement was evident; during that month there was a decrease of about eight per cent, while during the month of September there was an increase of but one per cent and in December, about one-half per cent. The net result for the 12 months ending December 31 was an average increase in the fuel consumption per 1,000 gross ton miles of only two per cent. In passenger service the increase per passenger train mile was somewhat larger, averaging about five per cent for the 12 months. This figure, however, does not take into account the effect of the return to competitive conditions in passenger service. On the whole, considering the unfavorable conditions obtaining during most of the year, the result is one which should be a source of considerable satisfaction to officers and men, particularly those in the locomotive service, and to those who have ever doubted the loyalty of these men it furnishes a striking bit of evidence that their doubts are largely groundless. These results, in the face of most unfavorable circumstances, indicate the possibilities for real economy now that economy has again become one of the principal objectives of railroad operation.

The Schedule Increases Shop Capacity

Not many months ago when railroads were hard pressed to maintain an adequate number of locomotives in service, it was common to hear the complaint that repair shop capacity had not increased in proportion to the increased number and size of locomotives. This complaint was probably justified, but very much could have been done to relieve the situation by a more general use of systems for scheduling or routing work in repair shops. In view of the fact that shop scheduling has received such a thorough try-out on over fifteen railroad systems in this country, demonstrating its ability to increase shop capacity and output, it is surprising to find that some shop executives are not yet thoroughly convinced of its value. To these men the shop schedule is only a cumbersome system, designed to occupy the time of one or more clerks and increase the output on paper only. The exact opposite is true. It would be just as foolish for a general to advance his troops in battle without first mapping out objectives and methods of approach, as for a shop superintendent to order locomotives in for repairs without knowing what work is to be done, seeing that necessary material is on hand and scheduling the work through the various departments so that all parts are repaired in time for the locomotive to go out of the shop on a given day. The old-fashioned method of getting output was to bring in as many locomotives as a shop would hold, incidentally blocking passageways and flooding the shop with locomotive parts in various stages of repair. No one knew when a particular part would be needed; all was hustle and bustle; little was accomplished. In many instances a shop with 25 pits was made to accommodate 35 locomotives with a resultant decrease rather than increase in output. Beginning the repair of locomotives shown first on the list, a cylinder or a deck casting might be needed unexpectedly and work on this particular locomotive would be abandoned in favor of a more promising one. The result —a big loss of time in transferring tools, robbing material from one locomotive to another and, in some cases, removing parts already bolted to planers or other tools for machining. This unscientific shop management demoralized foremen and men, caused a lot of unnecessary driving and resulted in an output not exceeding one locomotive per pit per month, or 25 locomotives per month. It has been shown conclusively that a shop schedule, under the direction of a competent supervisor, indicates what departments are weak, enabling them to be strengthened and so co-ordinates the work of all departments that the output in the case cited above could be increased to 35 or 50 locomotives per month.

Piratical Commission Merchants' Attacks on Freight Rates

ONE OF THE MOST DISHONEST and selfish propagandas we have ever observed is being carried on by commission merchants, and papers devoted to their interests, regarding the effect of existing freight rates upon the movement of fruits and vegetables. The producers of these commodities are receiving very low prices for them. The prices they are being paid are in many cases so low that they can hardly afford to market them. Through the columns of such papers as the Produce News, editions of which are published at New York, Chicago and Los Angeles, and The Packer, editions of which also are published in various cities, the commission merchants are trying to use this condition to promote a movement among the producers for reductions of freight rates.

Whether or not the freight rates should or should not be reduced, it is easy to show that it is the extortion practiced by the commission merchants and the retail dealers, rather than the present freight rates, which are responsible for the fact that a producer at present is being paid very low prices for his products, while the consumer in the cities is being forced to pay high prices for them. Recently much propaganda has been spread among the producers of vegetables in Texas, Florida, and other southern states, and also in California, regarding the present freight rates. It is time that a few cold facts regarding these important matters should be told.

On April 16 the average price paid to the producer for cabbage in Texas was $7 per ton. The cost of transporting it to Chicago was $26.30 per ton. This includes not only the freight rate, but also the cost of icing the refrigerator car and the federal tax on freight charges. The total amount that the producer received for producing it, and that the railroad received for hauling it about 1,300 miles, was 1.67 cents a pound or $33.30 a ton. On the same date cabbage retailed in Chicago for 7 cents a pound or $140.00 a ton, or $106.70 per ton more than the total amount that the producer received for producing it, and that the railroad received for bringing it to Chicago. Where did this $106.70 per ton—which was 75 per cent of the total retail price—go to? A very large part of it went into the pockets of the commission men who are carrying on the present propaganda, and the rest went into the pocket of the retailer. The toll taken by them was four times as much as the railroad received for hauling the cabbage from Texas to Chicago.

On the same date the producer in Texas received $42 per ton for white onions. The cost of transportation to Chicago was $29.64, and the total received by the producer and the railroad was $71.64 a ton or 3.58 cents a pound. At the same time white onions sold at retail in Chicago for 10 cents a pound or $200.00 a ton, or $128.36 more than the amount that the producer received for producing them, and that the railroad received for bringing them to Chicago. Most of this

difference went into the pockets of the commission merchant and the retailer.

On the same date the producer in Texas was paid $5.00 a ton for spinach. The cost of transportation to Chicago was $30.36 per ton, making a total of $35.36 per ton or 1.77 cents a pound that the producer and the railroad together received. At the same time the retail price of spinach in Chicago was 15 cents a pound or $300.00 per ton, or $264.64 per ton more than both the producer and the railroad received. Who got this $264.64 per ton, which was almost 90 per cent of the retail price? Most of it went to the very commission merchants who are carrying on propaganda against the present freight rates.

On March 26 the Chicago Produce News published an editorial entitled "Your Business in Peril! Help Save It!" It was addressed to the producers of cantaloupes and vegetables in the Imperial Valley of California. It stated that "big distributors in that section are worried because of the prohibitive freight rates to the eastern markets." It added, "It is the duty of every receiver of cantaloupes in the east, and of every man or firm interested in this industry, to cooperate with the distributors in an effort to reduce the ruinous freight rates."

These "distributors" are the very same men who, on April 16, were getting most of that $265.00 per ton from spinach, for the production and transportation of which the producers and railroads together had got only $35.36. The inference might have been drawn from what the Produce News said that the cantaloupe crop in the Imperial Valley was ready to be moved but could not be shipped on account of the high freight rates. The fact is, that no cantaloupes grown in the Imperial Valley were then ready for transportation and that they probably will not move until about May 15. The crop was reported in good condition and a harvest of 10,000 or 11,000 cars was expected. Traffic experts stated that they knew of no reason why the cantaloupes would not freely move to market under present conditions and rates. The commission merchants started their propaganda against the present freight rates in the hope, no doubt, that they could get them reduced before the shipments of the cantaloupe crop began and thereby pocket as a part of their own profits the revenues which, in the absence of a reduction in rates, will go to the railways.

There recently have been loud complaints from the same general source upon the ground that the rates on fruits and vegetables from Florida have been so high as to interfere with their shipment. Chairman Clark, of the Interstate Commerce Commission, investigated the matter and ascertained that from November 1, 1919, to February 28, 1920, the number of carloads of fruits and vegetables shipped from Florida by rail was 26,886, while from November 1, 1920, to February 28, 1921, under the present freight rates, the number of carloads shipped was 28,420, an increase of 1,534 carloads.

It has long been known that the commission merchants dealing in fruits and vegetables have been among the most remorseless profiteers in this country. The above facts show that in addition to continuing their efforts to enrich themselves by paying producers as little as possible for their products, and charging consumers as much as possible for them, they are now trying to force down freight rates by a campaign of falsification. A Congressional investigation of the railroad situation is soon to be held. In view of the fact that these commission people are showing such earnest interest in the subject of freight rates, we suggest to the Congressional Committee the propriety and expediency of ascertaining not only the effect of the present freight rates upon the movement of perishable commodities, but also the effect upon the welfare of both the producer and the consumer of the exorbitant toll taken from them by the commission merchant and the retail dealer, especially the former.

The Decision on National Agreements

THE DECISION of the Railroad Labor Board in the National Agreements' controversy seems, on the whole, to be a sensible one. Neither the railways nor the labor unions can reasonably claim a victory. The final results of it will not be known until the negotiations between individual railways and their employees provided for have been finished and the rules agreed upon have been approved by the Board, or rules have been made by the Board itself to apply to matters regarding which no agreements shall have been reached.

At present it appears probable that the railways will gain more by the decision than the labor unions. We say "labor unions" rather than employees, because the carrying out in good faith of the principles laid down by the Board will increase the efficiency of labor, and while the labor unions may temporarily be strengthened by rules which promote inefficiency, their members have as much to gain in the long run from rules that promote efficiency as have the railways and the public.

The decision recognizes the principle of the eight-hour day. This is a victory for the unions. The Board adds, however, that it believes this principle "should be limited to work requiring practically continuous application during eight hours." This plainly implies that it should not be applied to work not requiring practically continuous application. Furthermore, the Board says very significantly, "for eight hours' pay eight hours' work should be performed" except by train service employees, who are paid on a mileage as well as on an hourly basis.

These statements, read in connection with others in the "principles" enunciated, make very clear that the Board has no sympathy with, and indicate that it will not tolerate, rules whose plain intend is to limit production or to cause men to be paid for work not done. The necessity for proper classification of employees and reasonable definitions of the work to be done is recognized, but it is stated that the classifications and definitions "should not unduly impose uneconomical conditions upon the carriers." The fact that the obligation "to render honest, efficient and economical service" rests upon each organization of employees as well as upon the management, is specifically recognized. While the principle of seniority is approved, "it should be so applied as not to cause undue impairment of the service."

The Board clearly recognizes the right of employees to organize, and of the majority of each craft to be represented in negotiations by representatives of their own choosing. In other words, it recognizes both labor unionism and collective bargaining. At the same time it refuses to accept the views of the labor leaders as to what necessarily constitutes collective bargaining. They contended that the entire subject of rules and working conditions ought to be referred to a national conference of representatives of the railways and the labor unions, and implied that only in such conferences could true collective bargaining be carried on. By remanding the negotiation of rules and working conditions to conferences between the individual railways and their own employees, subject to the principles it laid down, the Board recognized bargaining between each railway and its own employees as true collective bargaining. The employees contended that rules and working conditions should be uniform throughout the United States. By remanding the determination of rules and working conditions to conferences between individual railways and their employees, the Board has recognized the principle that rules and working conditions should vary with and be adapted to the varying local conditions in different parts of the country.

It was estimated by General Atterbury that by restoring the rules and working conditions in effect on December 31, 1917, a saving of $300,000,000 annually could be made. The Labor Board has refused to restore these rules and

working conditions, and has recognized the principle of the eight-hour day. It has thereby rendered it impossible to effect anywhere near as large a saving as General Atterbury estimated could be made. At the same time the Board has said that it "is unable to find that all rules embodied in the National Agreements, orders, etc., of the Railroad Administration constitute just and reasonable rules for all carriers and parties to the dispute." Therefore, while the eight-hour day and the increase in expenses caused by it must be continued, a wide field is left open for the framing of rules which will be much more reasonable and economical than those now in effect. Agreements may, and, indeed, must, be made by the individual railways and their employees by which the present large payments for work not done, and the pyramiding of wages for work done, will be abolished. Straight time for overtime may be substituted for time and a half. Piece work may be established.

These improvements can be effected, however, only, first, by agreements between the railways and their employees, or, secondly, if they do not agree, by orders of the Railroad Labor Board. It is to be feared that the representatives of the labor unions on all the individual railways will make a strong effort to retain most, or all, of the present unreasonable rules. To secure reasonable settlements railway officers will have to show great tact, skill and courage, and this it is vitally important that they shall do. Otherwise, little or nothing will be gained for efficiency and economy through the Board's decision.

It is to be hoped the employees can be made to see that it would not be to their permanent advantage to retain unreasonable rules, and that, as a matter of fact, they cannot be retained without directly violating the sound principles of efficiency and economy laid down by the Labor Board. On the other hand, it is to be hoped that railway officers will conscientiously and consistently observe the spirit of the principles laid down by the Board, recognizing the right of employees to carry on negotiations through representatives of their own choosing.

Firmness, reasonableness and fairness on both sides will result in the establishment of rules and working conditions which will be beneficial to the employees, the railways and the public; while unreasonableness or unfairness on either side will simply throw the whole matter back into the hands of the Labor Board.

The Audible Signal and Automatic Train Control

TRAIN ORDERS are issued to direct the movement of trains, a flagman is required to protect his train and the block signal system has been developed to safeguard and facilitate train movements. Still, with all these precautions serious accidents continue to occur, because a train order has been transmitted or transcribed incorrectly or a train crew has overlooked it, or a flagman has failed to perform his duty properly, or a signal indicating stop has been overlooked by an engineman, etc. As a consequence, railway men and others are looking for means to prevent accidents which result from such failures of the human element. One of the results of the consideration of this problem was the incorporation of certain provisions regarding automatic train control in the Transportation Act. There are, however, honest differences of opinion on this subject. Some feel, as indicated elsewhere in an article in this issue, that excellent results may be obtained by means of audible warning devices to call to the attention of enginemen and others the fact that a dangerous condition exists. In this article the writer well brings out the fact that no devices should be used which will tend to take the control of the train away from the engineman and it is believed that all will agree that the control should *not* be taken away from an engineman when he is alive and "on the job."

Audible warnings have been advocated and used to some extent in this country, but more generally in Europe where fog conditions have made such warnings a necessity, although accidents have occurred because of the failure of the apparatus at critical times. It seems to have been due to this fact that automatic train control has been developed to the point which it has reached today in this country, and it is significant that it is receiving serious study in England and France, where the audible warning has been developed to a high state of efficiency. Any device which will reduce accidents should receive careful consideration, whether of an audible nature or automatic train control. It would appear that any audible device will have to "prove its case" in comparison with the record made with automatic train control systems already in service.

A Good Time to Study Terminal Operation

RAILWAY MEN ARE agreed that the present recession in railway traffic, although acute, will be of a temporary character and will soon give way to a volume of business heavier than ever before handled. This has been the history of past depressions, and there is nothing to indicate that the present will be an exception. The far-sighted railway officer will use this lull in business to study ways of improving his methods of operation so that he may be able to handle this increased business with the maximum economy when it comes to him.

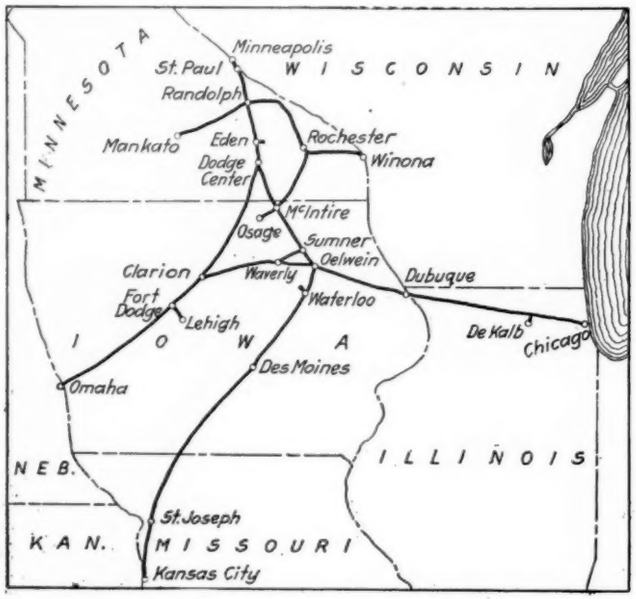
No feature of the railway plant constitutes a greater tax on the capacity and on the net revenues of the roads today than the terminals. In many instances they are outgrown or antiquated, while in others methods are in vogue which unnecessarily complicate operations. While sound railroading demands that cars be kept out of the yards and in road movement as much as possible, the present condition of many of the terminals makes it even more necessary that this be done in the interests of economy.

As pointed out by Colonel E. H. Shaughnessy in a letter to the editor, elsewhere in these columns, there is too much switching of freight cars in intermediate terminals. This switching not only costs money directly, but it results in injuries to equipment and more particularly in delays in movement. It is still the common practice on many roads to reclassify the dead freight trains at each division point. This is done in spite of the fact that there are repeated illustrations of the economy of making up trains as near the point of origin of the traffic as possible for movement to remote points without breaking up and reclassification at intermediate yards. While this practice requires the holding of this freight somewhat longer at the originating terminal in order to concentrate it in trainload lots, the time so lost is made up several times over by the delays saved in intermediate yards where only routine inspection and switching are done.

An officer who has not studied this problem will be surprised to note the amount of freight which can be assembled in trainload lots in this way. This plan not only saves a large expense of switching at intermediate terminals but it greatly expedites the movement of freight, a consideration of as much importance to the railways as to its patrons, since it promotes a more intensive use of the railway plant by increasing the capacity of a line and by securing the more prompt return of the equipment for further loading.

Chicago Great Western

THE CHICAGO GREAT WESTERN operates 1,496 miles of line, of which it owns 1,035, operates under lease 375 and has trackage rights over 86. The main lines of the parent company extend from Chicago to Minneapolis and from Oelwein, Ia., to Kansas City, Mo. The lines of the Wisconsin, Minnesota & Pacific, a road formerly controlled by entire ownership of stock and by lease, but acquired on June 1, 1920, by the parent company, extend from Mankato, Minn., through Red Wing and Simpson to Osage, Ia., with a branch to Winona, Minn. The Mason City & Fort Dodge, controlled by entire stock ownership and by lease, has lines from Oelwein, Ia., and Hayfield, Minn., to Omaha, Neb. This resumé should be sufficient to show that the road runs through a highly competitive territory and that it has to compete with a number of larger systems, many of which have through lines of their own and some of which are in a much stronger financial position. In years past the Chicago Great Western has had some success in making a living under



The Chicago Great Western

these conditions. In 1920, however, it suffered from all the handicaps in general characteristic of the aftermath of federal control.

Under government control it had a large amount of its business diverted to other lines. After it was returned to private operation it tried, by giving scheduled and more frequent freight service, to win this business back. It succeeded in getting back only part of the business it had lost, and the changes in its freight service resulted in the reduction in its average freight train load, of which mention will be made later. In the latter part of 1920 it suffered early and more than most railroads from reduction of traffic, because it is a large grain carrier and the effects of the action of the farmers in holding back their grain were felt earlier and more acutely in its territory than in almost any other part of the country.

The operations of the property showed a net operating deficit for 1920 of $4,158,344 as compared with a net railway operating income in 1919 of $893,307. The corporate income account for 1920, after taking into consideration the standard return for operation by the Railroad Administration in January and February, and the guaranty for the six months ending August 31, showed a deficit, after the payment of interest, of $2,530,682. In 1919 there was a corporate net income of $1,263,670.

The Chicago Great Western, when it was reorganized in 1909, was expected to be able to pay 4 per cent dividends on its preferred stock, which dividends were to be cumulative from June 30, 1914. An initial dividend of one per cent was paid December 1, 1915; one per cent dividends were also paid in May, 1916; October, 1916, and April, 1917. In August, 1918, one per cent was paid and again in January, 1919. In 1920, not only were no dividends paid on the preferred stock, but the company found itself unable to pay the unearned interest on the first mortgage bonds of the Mason City & Fort Dodge. It proposed not to pay this interest, but finally paid it after receiving a loan by the Interstate Commerce Commission from the revolving fund, covering the amount of interest due.

The story of the increase in gross earnings and the decrease in net in 1920 is the same in the case of the Chicago Great Western as it is in the case of most of the other railroads of the country. The freight revenue in 1920, amounting to $15,990,231, represented an increase of 9.86 per cent over 1919 and the total operating revenues of $24,032,435, an increase of 8.61 per cent. The operating expenses amounting to $26,452,243, on the other hand, increased no less than 36 per cent. The increase in expenses for maintenance of way as between the two years was especially notable, being 70 per cent. The figures of maintenance work done in 1920, however, do not indicate that the charges for maintenance in 1920 were excessive nearly so much as that the maintenance work done in 1919 must have been insufficient. Detailed figures for 1919 are not given in the report; a comparison as between 1920 and of two years prior to federal control—namely, 1917 and 1916—gives us figures somewhat as follows:

	1920	1917	1916
Total miles of track reballasted	274	67	125
Lineal feet of bridges, trestles and culverts rebuilt or replaced	6,575	7,576	11,969
Cubic yards of material moved—roadbed	129,187	138,660	238,520
Total miles of track relaid	60	124	120
Cross-ties put in track:			
Treated	193,547	71,630	31,186
Untreated	381,541	486,837	571,335
Total	575,088	558,467	602,521
New tie plates	88,796	36,698	246,149
New rail joints	10,420	31,233	101,799

The Chicago Great Western's best year since its reorganization in 1909 was in 1916, not only from the standpoint of business alone, but also from that of net earnings. In that year it earned its 4 per cent on the preferred stock (although it paid only 2 per cent) and its prospects of continuing to do so looked rather bright. The road, however, suffered acutely from federal control, particularly, as already stated, because it lost business, much of which was diverted to other lines and which has not been restored to its former channels. It is perhaps natural, therefore, that the progress that has been made since 1916 has not been as great as might be wished. The tons of revenue freight carried in 1920 and the total ton-miles were greater than in 1919; they were, however, less than in 1916.

A road in the position of the Chicago Great Western needs plenty of cars and can only be successful against the competition of longer through lines on the basis of superior service. Owing to the Chicago Great Western's financial disabilities, the total number of freight cars in service recently has been decreasing. No standard cars were received from the Railroad Administration, nor were any new cars ordered during 1920. The average capacity of the freight cars in service in 1920 was 35.36 tons; in 1916 it was 35.69 and in 1917, 36 tons. There has been some increase in the number of locomotives in the past few years. Ten Mikado and five switching locomotives were allocated by the U. S. R. A., although over the road's protest. Ten

additional Mikados were ordered in 1920. The report does not give any figures as to locomotive tractive effort.

An index to a road's efficiency is most often found in the figure of the average revenue trainload. From 1910 to 1916 the Chicago Great Western succeeded in nearly doubling its figure for average revenue tons per train mile, increasing the average trainload in 1910 of 331 tons to 603 tons in 1916. In 1918 the average revenue trainload had been increased to 620 tons; since then, for reasons already indicated, there has been retrogression: the average revenue trainload in 1919 was 588 tons; in 1920, 587 tons.

The Chicago Great Western's business is rather varied; it consists of about 28 per cent products of mines; 27 per cent products of agriculture and 26 per cent manufactures. Its average haul for revenue freight in 1920 was 274 miles. The Chicago Great Western has a high percentage of loaded car miles to total car miles, running about 72 per cent. It had in 1920 an average load per loaded car of but 26 tons and a mileage per car per day of but 24. The ton-miles daily per car in 1920 were 433; in 1919, 427.

The following table shows the principal figures for operation in 1920 and 1919:

	1920	1919
Freight revenue	$15,990,231	$14,555,496
Passenger revenue	5,692,494	5,979,147
Total operating revenue	24,032,435	22,128,189
Maintenance of way expenses	5,987,678	3,525,827
Maintenance of equipment	6,736,579	5,010,519
Traffic expenses	520,662	320,950
Transportation expenses	12,258,484	9,745,333
General expenses	722,369	629,799
Total operating expenses	26,452,243	19,389,535
Net from railway operations	Def. 2,419,809	2,738,654
Taxes	1,010,657	798,590
Net railway operating income	Def. 4,158,344	893,307

The corporate income account was given in last week's issue, page 913. It showed figures as follows:

	1920	1919
Total income (or deficit)	Def. $868,953	$3,051,344
Deductions for interest, taxes, etc.	1,661,729	1,787,674
Net income (or deficit)	Def. 2,530,682	1,263,670
Dividends (preferred, one per cent)	.....	439,266

New Books

British Railways and the Great War, Part I. By Edwin A. Pratt, 6 in. by 10 in., illustrated. 108 pages. Published by Selwyn & Blount, Ltd., 21 York Buildings, Adelphi, London, W.C.2, England.

This volume is the first of a series of ten which proposes to give as complete an account as possible of the workings of the British railways during the war years from 1914 to 1918. Approximately a half of this book, which is known as Part I, is devoted to a summary of the various steps which led up to the actual taking over of the railways by the government in 1914. The various plans proposed since as far back as 1847 for providing government control and unified operation in times of national peril are described briefly and the plan actually adopted is explained in some detail. With this preparation the author takes up the discussion of the situation which confronted the government's administration when it took over its work on August 4, 1914. The extent of government control, the methods adopted by the "executive" for handling its work, the financial arrangements with the carriers, the provision made for the handling of abnormal war time traffic, and other problems which were met with early in the war are set down here and described in painstaking detail. In view of the fact that the intensiveness of the work would tend to make it of great value for purposes of reference it is unfortunate that the material is not so organized that any particular phase of the situation is easily available to the casual reader. On the whole, however, if the remaining parts of this work follow the general plan of Part I, this series will be a remarkable contribution to the history of the British railways.

Letters to the Editor

Eliminating Rough Handling Of Passenger Trains

NEW YORK.

TO THE EDITOR:

With reference to the article by F. W. Dean in the January 21 issue of the *Railway Age*, on the rough handling of passengers, I wish to point out one way which would eliminate the uncomfortable "slam-bang" at the start of a passenger train.

By employing anti-friction bearings in place of the present journal bearings on passenger cars, the resistance at starting these cars is so reduced that from 10 per cent to 15 per cent of the pulling force required with journal bearings will set the train in motion. This figure is obtained from comparative tests made on the Swedish State Railways with ball bearings and journal bearings.

The reason why anti-friction bearings, of either the ball or roller-type, have not come into more extensive use on railroad cars, in spite of such a good showing, is no doubt the fact that the hitherto known forms of these bearings have proven insufficient in their carrying capacity, in either a radial or axial direction, or both, to make them an economic success in the railroad service.

However, there is now a new type of anti-friction bearing coming into use in this field, technically known as a disc bearing. The first bearings of this kind were installed about two years ago by the Swedish State Railways, and their tests have given such results that the use of these bearings is now being extended. These bearings combine the easy running of the ball bearing with the strength and carrying capacity of the roller bearing, thus contributing at the same time to an increased comfort for the passengers as well as to reduced operating expenses for the railroads. E. F. MAAS.

Terminal Operation Needs Constructive Study

NEW YORK CITY.

TO THE EDITOR:

The oil industry is very much concerned over the question of what the railroads are going to be able to do toward handling freight business in a prompt, regular way when good times return, and the terminals, perhaps the side tracks, will again be filled with loaded cars awaiting movement. No doubt other branches of industry are just as much concerned as the oil people about what is going to happen, but the fact that there are some 100,000 odd tank cars already in the service of the oil companies makes their case a pressing one and perhaps justifies a rather frank discussion of the situation.

It is a foregone conclusion that the present slump in business is temporary and sooner or later the wheels of industry will once more be turning at high speed. Our industries are continually growing, which means that the railroads will again be confronted with the necessity for handling a heavier traffic than they have ever handled before. When this time comes, what is going to happen? Are they going to carry on satisfactorily and be able to accept all the business offered or are they going to fall by the wayside and be obliged to resort to embargoes, priorities, permits and all that sort of dreadful expedience?

Everyone familiar with the mechanism of railroad trans-

portation knows that at the present time the railroad facilities of the country, as a whole, are far short of what they ought to be to handle the peak railroad traffic scientifically and economically. There is nothing to be gained in spending time trying to figure out why this is so; it is so, and what is more, there is no immediate relief in sight. At the very time when dirt should be flying we find the railway managements tied up with wage questions, and to a lesser extent, rate questions, and in most cases the great big question of keeping out of the hands of a receiver.

Accepting this situation as it exists, what can be done to make the best of it? With this thought in mind, attention is invited to the apparent necessity for studying terminal operation in a constructive far-reaching way, perhaps more attentively than ever before, because it seems that there is a lot of lost motion in that phase of railway operation that can be eliminated, thereby bringing about better service without additional expenditure on the part of the railroads.

We all know there is too much switching and reswitching of freight cars in intermediate terminals. We know that freight trains, particularly the so-called "dead freights" are reclassified wholly or in part at nearly every division point, or about every hundred miles, and sometimes oftener. (This statement is not literally true, for there are some notable exceptions, but it is close enough to serve the purpose.) Switching cars costs money and causes delay, therefore, extra switching causes unnecessary expense and delay, hence the possibility for benefiting both the railroad and shipper by keeping this intermediate handling to an irreducible minimum.

Following this thought further and in the light of past experience, we find the intermediate terminal handling of cars increases faster proportionately than the traffic does; the unnecessary expense and delay being compounded at a time when it should be avoided. In other words, the better business is, the poorer service is, until the saturation point is reached, when there is practically no service worthy of the name.

The way to maintain dependable service and to reduce the expense and delay mentioned, is to do the work in the initial terminal, assembling trains that will move long distances without reclassification. This, of course, is not a new idea at all. For years past every railroad of any consequence has had some sort of through freight service but at best the service so provided has been merely with the idea of handling the "preferred" freight which is but a small part of the general traffic. I want to submit for consideration the idea of handling all freight on through freight trains that will move from the point of origin to the logical breakup point without being disturbed enroute.

When I say further that these through freight trains should not be thought of as confined to restricted districts or even to railroad systems, but nation-wide in extent, some idea may be gained of just what is passing through the minds of those vitally concerned in this problem.

Of course real progress cannot be made along this line unless the railroad managements get together and co-operate among themselves to that end and call on the shipping interests to help out. Surely the responsibility rests upon them to take the initiative in this respect. There is need for real railroad statesmanship in formulating comprehensive plans not only in connection with the subject under discussion, but in other directions as well, wherein joint action would bring about better utilization of the existing railroad plant.

Short-sighted persons among the railway and shipping folks are enthused because the railroads are again putting up the competitive barriers and they put great stress on what is being done in the way of restoring the old time high speed "de luxe" freight service that makes a first, second or some such morning delivery between fortunately situated business centers. It is common knowledge that some railroads are going into this sort of thing to such an extent that they are on the verge, if not already into, a freight speed war. Under the existing circumstances, could anything be more indefensible? Those who have been through the mill and can therefore see well into the future know what little bearing this frilly sort of service has upon the handling of the great bulk of freight traffic and how quickly it goes by the board when things break loose. The answer to the problem does not lie in that direction but in the less spectacular one of taking care of all the traffic fairly well instead of a small portion extremely well and letting the rest get along somehow or other.

During the war, that is to say during governmental control, I was in France helping the French army handle an extremely heavy and important railway traffic, which, by the way, was handled on through freight schedules without even a train dispatcher, but that is another story; so that I do not know from personal observation what took place here. Getting the story second-handed and noting the after results, I am convinced that governmental railway operation is a thoroughly unsatisfactory proposition to even think about. Yet some things were done during the governmental régime which appealed very much to the oil shippers. What impressed them was the way in which trainloads of petroleum products were assembled in mid-continent and handled through intact to the Atlantic seaboard at an average speed of around two hundred miles per day in spite of the blocked terminals and sidetracks and very severe weather conditions. Of course, the secret, if it was a secret, to such movement was merely keeping the trains intact and out of the terminals. The rest was comparatively easy. I understand that other commodities such as flour, grain, lumber and steel were put through in the same manner, running by similarly important cars that had started out singly and had been completely immobilized in the blockaded terminals and storage tracks.

The lesson learned at the time has not been lost sight of by the traffic managers of the oil companies. Ever since they have consistently worked towards the idea of shipping in trainload lots as long distances as they could possibly arrange for, and have, with the aid of the American Petroleum Institute and cordial support of their railroad friends, secured remarkably good results, in spite of the fact that the oil business is only a small part of the whole and the return to private control pretty thoroughly disrupted the through freight arrangements.

If this sort of thing can be done in a small way by one group of shippers, it certainly can and should be done in a big way by concerted action on the part of the railroads and shippers working as two groups. As I have said before, it is my judgment that the duty for taking the initiative rests with the railroads and they should assume the burden so that by no possible chance will the initiative pass from them to those who are not so well fitted for the task.

COL. E. H. SHAUGHNESSY,
Assistant Director, Division of Transportation, American Petroleum Institute.

THE UNITED STATES Civil Service Commission has announced an open competitive examination for shop apprentices. Vacancies in the Bureau of Standards at $720 a year and positions requiring similar qualifications will be filled from this examination. Applications will be received by the commission at Washington, until August 1, 1921.

THE ANNUAL REPORT of the relief department of the Chicago, Burlington & Quincy shows that during the year 1920 the department paid $627,148 in sick and death benefits. Employees contributed $678,817, income from investments was $20,625 and interest on cash advanced by the railroad was $7,013. There was an excess of receipts over disbursements of $65,279.

Fig. 1. St. Benin Viaduct Completed

Reconstruction of Bridges and Tunnels in France

Peculiar Difficulties Overcome—Reinforced Concrete Used Extensively—Rebuilding the Canals

By Oliver F. Allen

Formerly Major of Engineers, American Expeditionary Forces

IN THE FIRST ARTICLE of this series, which appeared in the *Railway Age* of April 8 (page 879), attention was called to the general state of destruction of the French and Belgian railways after the signing of the armistice and the plans which were adopted for rebuilding the lines. In this article it is proposed to describe in some detail the problems which were met with in the reconstruction of bridges and tunnels. This was one of the first difficulties encountered in putting the lines in order for the transportation of freight and passengers.

An example of tunnel reconstruction is the Vauxaillon tunnel between Soissons and Laon, shown in the accompanying illustrations. This is an important link connecting two valleys in a hilly country where it would be practically impossible to establish adequate railway communication for either civilian or military uses without a tunnel. It was utilized by the Germans in 1914, 1915, and 1916 and effectively destroyed by them when retreating in 1917 by blowing in both ends and the middle. With the exposed northern end camouflaged the French military engineers, working with the staff of the Northern Railway, repaired the tunnel, using concrete in place of stone and brick and had it ready for service early in March, 1918, when the Boche drive came. Forced to abandon it, the French destroyed it. The Germans

Fig. 2—Slaughter House Bridge

Left—March 1, 1919. Right—Temporary military structure, August 7, 1919. The abutment for the permanent bridge is nearly completed.

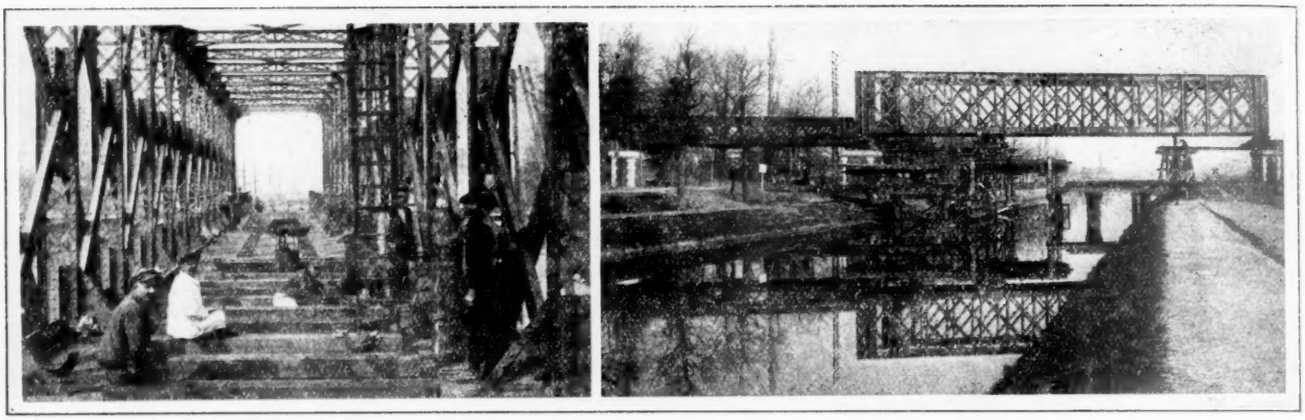


Fig. 3—Slaughter House Bridge, March, 1920

Left—While the girder was being lowered into place the track was being laid and the bridge was actually put into service the same day. Right—The rebuilt girder being put into place using the temporary military bridge as a support.

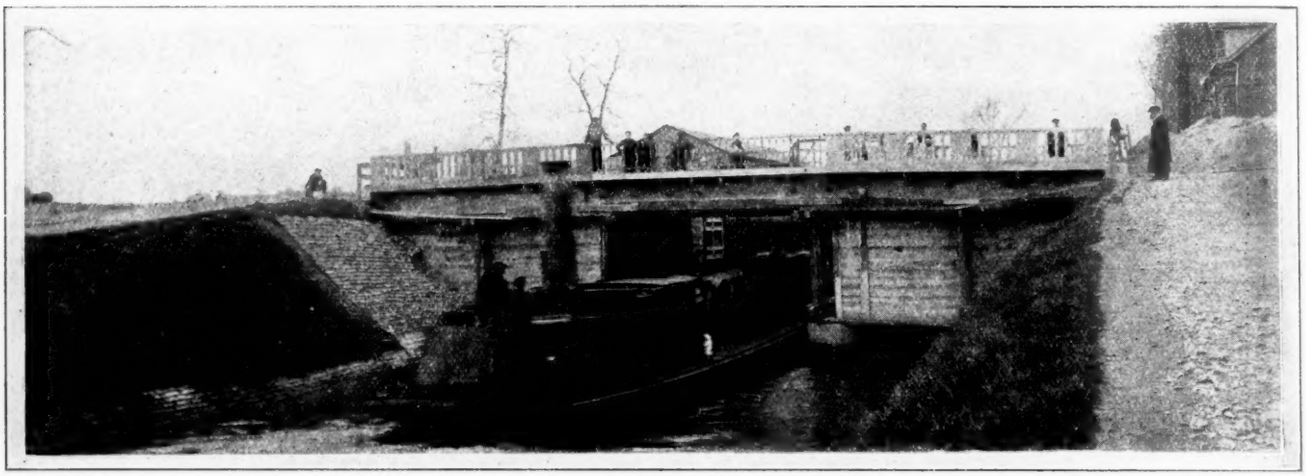


Fig. 4—Lock No. 6 at Cottigny, de Roubaix Canal

The canal in service with a self-propelled boat with tilting smoke-stack going under bridge on March 25, 1920.

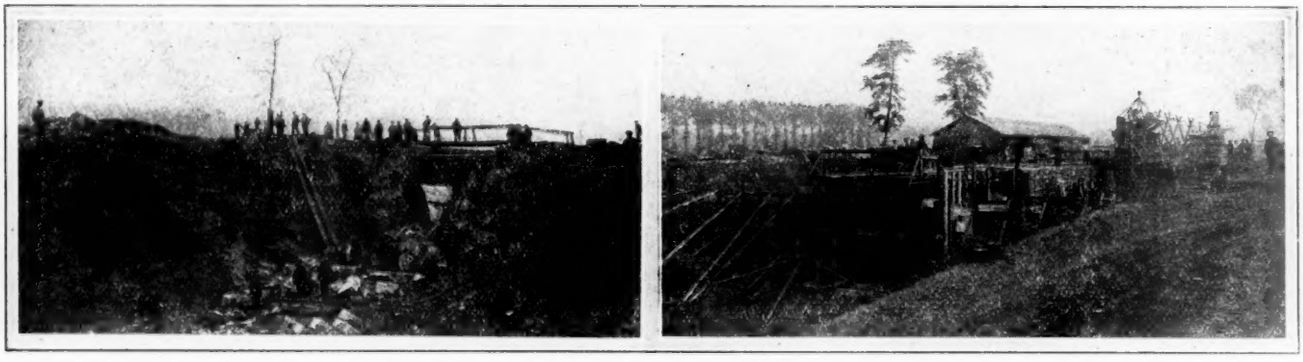


Fig. 5—Lock No. 6 at Cottigny, de Roubaix Canal

Left—February 18, 1919. Right—The new concrete lock and bridge being put in place, July 12, 1919.

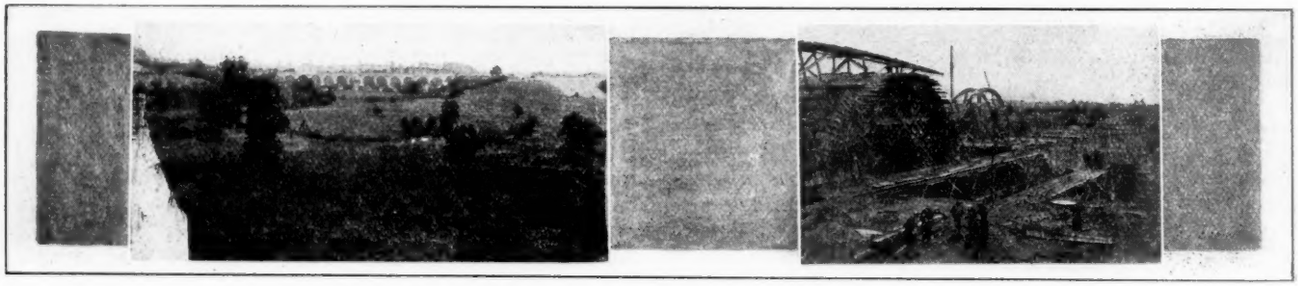


Fig. 6—Origny Viaduct, Soissons-Hirson Line

Left—The viaduct completed. Right—Viaduct under construction. The piers have been rebuilt, as described in the text.

immediately started reconstruction and were able to use the tunnel for some time before their evacuation in September, 1918, when they again blew in both ends.

The heavy rains of the winter of 1918-19 added to the timbering very difficult. The best of lumber was used but, as the accompanying illustrations show, the tremendous pressure which the loose earth exerted made the work difficult. It was found necessary to rebuild the side walls very much

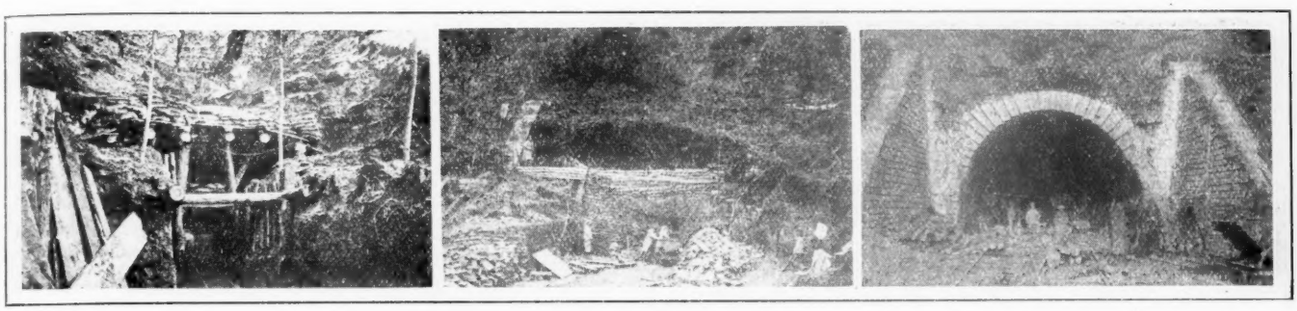


Fig. 7—Vauxaillon Tunnel

Left—Northern end being repaired by French following German retreat in 1917. Note sand bag camouflage. Center—October, 1917. Another view of same end. Right—Southern end, not exposed to enemy, under construction in 1917.

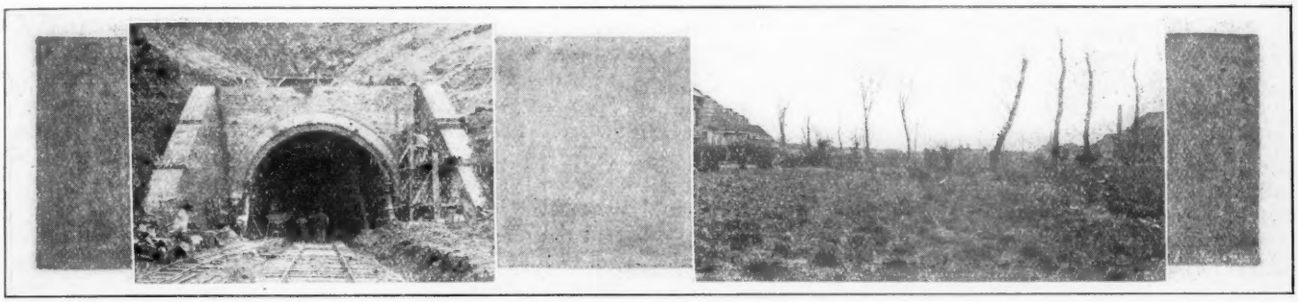


Fig. 8—Left, Vauxaillon Tunnel; Right, St. Benin Viaduct

The northern end of tunnel nearly completed in the spring of 1919. St. Benin Viaduct before reconstruction, May, 1919.

Fig. 9—Vauxaillon Tunnel

Left—Work in the top gallery, February, 1918. Center—Timbering during latter part of 1918, following third destruction of tunnel, showing pressure of disintegrated mass above. Right—The type of timbering used for the last stages of the work in 1918.

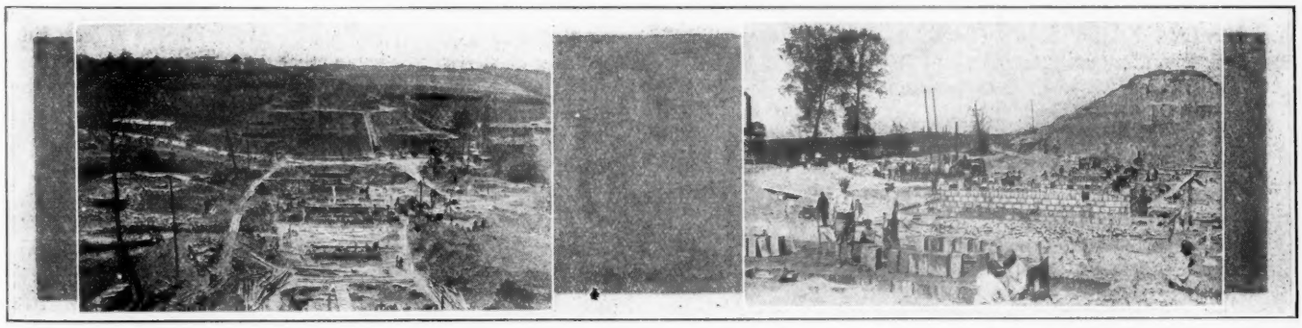


Fig. 10—St. Benin Viaduct

Left—Starting the concrete block shells on the pier foundations. Right—Building concrete block shell forms for the piers.

upheaval caused by the high explosives used in the several destructions and left the earth around and over the tunnel in a very spongy, granular, disintegrated condition. The French found the internal pressure so great as to make stronger than they had been originally to a height of about 13 ft. (4 meters). These concrete walls were completed in March, 1918. Afterwards the headings were finished at the top and the whole arch was covered with concrete. This work

included massive concrete foundations under the reconstructed portions. Finally liquid concrete was pumped into the voids above the completed arch. Both tracks were in service in May, 1919, and the work was entirely finished a few months later.

Concrete Used Largely

In studying the question of rebuilding the destroyed bridges it was soon apparent that lack of time, manufacturing facilities and transportation combined to prohibit the use of bricks and cut stone to rebuild the masonry work as it had existed before, as well as the use of steel where there had been many steel bridges. Skilled labor was difficult to get. Full advantage was taken of the latest developments in the use of reinforced concrete which had proved so effective for many military operations and the majority of the bridges and viaducts were rebuilt of that material. In many cases the debris from the ruins of old piers, abutments, foundations, arches, buildings, etc., were collected, crushed and utilized for new concrete structures. Where possible old foundations were used. They were generally found sound after taking off a few feet of the top below the point where the explosion occurred.

The shortage of labor and the scarcity of lumber made the problem of forms a serious one. This was realized in the early days of the war when the reconstruction problem was first studied and experiments were carried on in an aviation field near Paris by railway and military engineers with a view to developing a method of pouring concrete piers and arches without the expense and delay of large and heavy timber forms.

Piers were built by putting up a shell of concrete blocks similar in appearance to the cut stone formerly used. This shell was used as a form into which the mass of concrete for the pier was poured. (See illustrations, Figs. 6 and 10.) A light structure of wooden forms, sometimes balanced on each side of the pier as for a cantilever truss, just strong enough to hold a concrete arch about a foot thick was next employed in place of the massive forms previously used. A ring of concrete was then poured on this fragile form and after standing about a week was hard enough to form a truss by itself upon which the rest of the arch could be built without any noticeable deformation of the original timber truss. (See illustrations, Figs. 6 and 10.) The faces of the arches are also of concrete blocks the same as the shells for the piers, the whole interior mass being filled into such forms. Cinder concrete was used sometimes. When filling in, the new material was bonded with the first rings by a thin layer of pure cement and no serious difficulty was encountered in making a perfect joint. A model arch built in this manner was wrecked by the engineers who built it and the cleavages did not follow the bonding line between the first and second pourings. The union of the parts was perfect. Subsequently two bridges which had been built in this manner following the German retreat of 1917 were destroyed by the Boches in 1918. In this destruction the central parts of the arches only were blown out. Parts of the arches on each side of the piers were left in position, cantilever fashion, and it was found that no cleavages appeared between the concentric rings forming the arch. This method not only effected an enormous saving in lumber costs, but permitted the same size working crews to carry on much faster than would have been possible in the old way.

Chambers for High Explosives

Accompanying illustrations of the Saint-Benin and other viaducts show this method of construction in its various stages. (Especially Figs. 4, 6, 8 and 10, and Figs. 2, 3 and 4 on page 878 of the *Railway Age* of April 8.) It is an interesting side light on the European situation to note that all of these new bridges are provided with chambers for high explosives so located as to facilitate complete destruction in case of another invasion. Even steel structures are provided with shelves or pockets so that explosives can be placed easily and quickly if their destruction becomes a military necessity.

Attention is especially called to the artistic appearance of the finished concrete bridges. (See Figs. 1, 4 and 6.) Where outside facings are not of concrete blocks they are coated over with fine cement. Balustrades have been included. In some cases, where salvaged bricks were available or there were neighboring brick yards already restored, the shells of the piers and the surfaces of the arches were built of them. The bricks were used as forms the same as the concrete blocks.

At Lille six old steel-arch bridges over streets were destroyed with their abutments. This destruction was so complete as to eliminate any thought of rebuilding. The available height and the carrying capacity required by the new railway program prohibited ordinary masonry being used for reconstruction from the original designs. The unsightly steel lattice or webbed girders were ruled out from an aesthetic point of view, as well as because of the difficulty of getting material from which to make them. Here again reinforced concrete was taken advantage of and the debris utilized. The abutments and very flat arches were so carefully designed that there is only about a foot between the bottom of the arch at the center and the bottom of the rail. These bridges were finished with iron balustrades salvaged from the old bridges.

The illustrations, Figs. 6 and 8, of the St. Benin and Origny viaducts are not only typical of the type of reconstruction so generally employed, but show the rapidity of reconstruction work in the areas held by the enemy until the time of the armistice.

Canal Transportation

It is difficult for Americans to realize the importance of canal transportation in Western Europe. We are prone to picture canal shipments as slow and inefficient. But even in the rush of war work our American Army engineers found cases where canal transportation was the quickest and best from a military point of view, and all the Allied armies utilized canals very extensively during the war. They were even protected by little gunboats which were dispatched after the armistice to the Rhine by the way of the Marne and the Moselle. The destruction of the canals was of the same order as the railway destruction and the necessity for their rebuilding urgent. Here again, reinforced concrete was taken advantage of as illustrated by Lock No. 6 at Cottigny (Figs. 4 and 5). While many canals were restored to use by the spring of 1920, others will not be available for a long time, especially some of those in the coal regions, the streams which supplied them having been diverted into the mines by the Germans.

The next article of this series, which will deal with the rebuilding of terminals and transfer yards, will appear in the *Railway Age* at an early date.

THE NORTHWESTERN PACIFIC reports for the year 1920 eleven fewer casualties to employees than during the preceding year. This was a decrease in the number of casualties of 7½ per cent. This company operates 507 miles of road with 75 locomotives. The number of locomotive miles per train service casualty was increased 35 per cent and man hours per industrial casualty 29 per cent. During the year 10,156 man hours were devoted to safety committee work, and W. S. Wollner, general safety agent, estimates that the salaries and expenses of his department amounted to about $30,000.

Train Operation and Automatic Train Control

Caution Signals, Properly Located with Audible Signals, Should Solve the Collision Problem

By J. B. Latimer

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THE IDEA of automatically stopping a railroad train which has entered a danger zone is not a new one. It is certainly as old as the derail which was the first crude up to the present. The idea of speed control is of more recent origin and was never looked on as a practical possibility until electricity began to be used in railway signaling or, more specifically, after the use of automatic block signals had become a practical fact.

There is little to be written of the history of automatic train control prior to the adoption of the Kinsman system on the Boston Elevated railways in 1901 and on the New York subways in 1903, though it is the writer's recollection that the Intramural railway at the World's Columbian Exposition in Chicago in 1893 was equipped with such a safeguard of the Rowell-Potter type.

Investigations of Train Control

In 1907 the Block Signal and Train Control Board was appointed by the United States government to investigate safety appliances on railways and from that time on during the life of that board and thenceforth by its successor, the Safety Bureau of the Interstate Commerce Commission, a careful and painstaking study of the subject of automatic train control has been conducted under government supervision.

In 1914 a committee of the Railway Signal Association, at the request of the American Railway Association, drew up a set of requisites for the installation of train control apparatus which the latter body adopted on May 20th of that year; and in 1919 these were adopted by the Safety Bureau of the Interstate Commerce Commission. They are as follows:

An installation so arranged that its operation will automatically result in either one or the other or both of the following conditions:

First—The application of the brakes until the train has been brought to a stop.

Second—The application of the brakes when the speed of the train exceeds a prescribed rate and continued until the speed has been reduced to a predetermined rate.

Requisites of Installation*

1. The apparatus so constructed that the failure of any essential part will cause the application of the brakes.
2. The apparatus so constructed that it will automatically control the train in the event of failure by engineman to observe signals or speed regulations
3. The apparatus so constructed that it will control the train in the event of a failure of fixed signals to give proper indications.
4. The apparatus so constructed that proper operative relation between those parts along the roadway and those on the train will be assured under all conditions of speed, weather, wear, oscillation and shock.
5. The train apparatus so constructed as to prevent the release of the brakes after automatic application has been made until the train has been brought to a stop or the speed of the train has been reduced to a predetermined rate.
6. The train apparatus so constructed that when operated it will make an application of the brakes sufficient to stop or control the train within a predetermined distance.
7. The apparatus so constructed as not to interfere with the application of the brakes by the engineman's brake valve or the efficiency of the air brake system.
8. The apparatus so constructed as to be operative when the engine is running forward or backward.
9. The apparatus so constructed that when two or more engines are coupled together or a pusher is being used the apparatus can be made effective on the engine only from which the brakes are controlled.
10. The apparatus so constructed as to be operative on trains moving only with the current of traffic.
11. The apparatus so constructed as to conform to The American Railway Association standard of clearances of rolling equipment and structures.
12. The apparatus so constructed as not to constitute a source of danger to employees or passengers, either in its installation or operation.
13. The apparatus so constructed as not to interfere with the means used for operating fixed signals.

*These requisites are drawn for application in connection with a properly installed block signal or interlocking system.

Adjuncts

The following may be used:

(A) CAB SIGNAL; a signal located in the engine cab indicating a condition affecting the movement of the train and so constructed that the failure of any part directly controlling the signal will cause it to give the "stop" indication.

(B) DETONATING SIGNAL APPARATUS; an apparatus located along the roadway and so constructed as to give an audible signal by means of a torpedo or other explosive cartridge.

(C) SPEED INDICATOR.

(D) RECORDING DEVICE; an apparatus located on the train and so constructed as to make a record of the operations of the automatic applications of the brakes and of the speeds of the train, and such other records as may be desirable.

It is the writer's belief that the committee which first drew up these specifications had in mind more the substitution of train control for existing block systems than the design of the apparatus to be used as an auxiliary and a check on the operation of an existing block system, and for that reason that the specifications are unnecessarily severe.

The Object of Automatic Train Control

In medio tutissimus ibis, "in the middle course we steer most safely," runs the old Latin proverb, and it has always appeared to the writer that this was a very good thought to have in mind in connection with the adoption of automatic train control.

Automatic train control seeks one object, and one only, and that is to add safety to the movement of trains on railroads; and the simplest and least expensive device which will do that is the device which ought to be adopted.

The running of a locomotive is an operation which requires considerable skill. It is safe to say that the average locomotive runner serves an apprenticeship of at least five years before he is entrusted with the charge of a train in main line service. Varying classes of trains, varying grades and curvature and varying speeds all require special handling of the brakes, and to equip a railroad with a device which makes a brake application of a uniform sort compulsory under certain conditions is likely to introduce elements of danger into train operation just as great as those it is the endeavor to eliminate.

To analyze the whole situation, we are confronted with the problem of preventing collisions between railroad trains. The methods most generally followed at the present time are the instructions to trainmen to protect their trains by flag, the issuance of orders to advise trains where they are to meet or pass each other and the action to be taken by them at the meeting points to guard against collision, and the use of block signals. It is a lamentable fact that these precautions have proved to be inadequate and that collisions continue to occur. Trainmen fail to flag properly, orders are forgotten, misread, garbled in transmission or improperly issued, block signals are improperly displayed or are overlooked. All this has forced the belief on thinking railway men and those interested in railway operation as representatives of the public that something further must be done to add additional safeguards to train operation.

The question now before us is, how is this to be done?

Shall we wipe the slate clean and start over again along

the line of the development of apparatus which leaves the runner of a locomotive a mere automaton, able only to start his train when conditions are favorable and entirely dependent on the control machinery to stop it when a stop is necessary?

Shall we reverse the practice which has hitherto prevailed and which requires the locomotive runner to be the most highly trained man in the train crew and, relieving him of responsibility, shift it to the shoulders of the man who maintains the control apparatus, or shall we take what 90 years of experience has developed and build on to it a little further?

To the writer the latter course seems by far the safest and the most likely to attain the desired end. Although it is admitted that flagging rule 99, that the most careful development of a system governing the issuance of train orders and that the best block system yet invented have failed entirely to eliminate collisions, the ratio of the times in which they fail to the times in which they succeed is very small. Neither the public nor the railroad officer really realizes the matter of train control than to add a fourth factor which will act when the present methods have failed?

The writer's observation covering an experience of 38 years in active railroad work has convinced him that the vast majority of collisions are due either to failure to flag or to non-observance of signals. An increase in the mileage of automatic block signals would be a remedy for the first and an adjunct to block signals, either automatic or mechanical, which would insure that an engine runner was awake and attending to business at the time he passed a caution block signal would come pretty near taking care of the other. It is the writer's belief that the current practice of allowing the block signal at the entrance of one block to act also as a caution signal for the signal of the next block ahead is a weakness in much of our signal practice today, unless the blocks are less than a mile in length.

The trouble with the train order system is that orders must be delivered some time in advance of the time they are to be acted on and the interval between delivery and action is often sufficient to allow of their being forgotten. The giving of a caution signal too far from the signal, approach to which it controls, is open to the same objection. It is not infrequent to find the practice just referred to in use in a block system where the blocks average two to two and one-half miles in length. The A. R. A. rule for a caution signal is: "Approach home signal with caution." Now, nobody expects the runner of an engine in such a system as we are discussing (one with blocks two to two and a half miles long) to slow down on passing the caution signal and to run slowly until he picks up the home signal for the next block, two miles away. What is expected of him is to realize that he may have to stop at a signal a couple of miles further on and to use his own best judgment in controlling his train so as not to pass this other signal if it is at stop when he reaches it. Is it any wonder under these circumstances that with his other duties an engineman does occasionally misjudge the point at which he should stop? Some railroads install their block systems with a separate caution signal for each home signal, placing the caution signal at a uniform distance from the home, this distance to be not more than good braking distance. It is a safe prediction that, other qualifications being equal, there are a good many less cases of signals being overrun on roads so equipped than on those where the former and more generally used system is in vogue.

Causes of Collisions

But to get back to the question of automatic train control.

Admitting that the two most fruitful causes of collision are inadequate flagging and non-observance of signals, the third is the failure of the train order system. Here again the installation of automatic block signals is the cure; and right here I want to warn any reader of this paper who is disposed to criticise my twice made statement that automatic block signals are the cure for two evils, poor flagging and overlooked, forgotten or erroneous orders, that he had better wait until I finish before he cries out that automatic block signals have failed to do this in the past; because I am going to suggest an addition to present automatic practice which will insure that engine runners will know in ample time to make a stop when they are approaching a block signal in the stop position.

There are a number of inventions covering apparatus which may be connected to a caution signal which will warn enginemen as they pass it that it is in the caution position. In some systems this warning is given by a brake application. In some by an audible or visual signal displayed in the cab of the engine. In others by an audible roadside signal. Some of these are arranged so that if the engine runner performs some action, such as pressing a button or moving a lever as he approaches the signal, thereby showing that he is awake and realizes the condition, the apparatus does not act; but if he fails to do this, as would be the case were he asleep or unconscious, the apparatus takes action.

As explained in the earlier part of this paper, there are many objectionable features to any apparatus which makes an arbitrary brake application and the use of such apparatus should be avoided if the object sought, the prevention of collisions, can be attained without it. Cab signals, or at least all of them that have come under the writer's observation, require a good deal of delicate electrical apparatus on the engine which it is hard to keep in working order. The failure of more than one theoretically good train control device has been because of this fact. In the writer's opinion, a good audible wayside signal is all that is necessary. This leaves the control of the braking system entirely in the hands of the engine runner, which is where it should be, and we have improved present conditions to the extent that if a train passes a signal displayed at caution without the engine runner's answering the caution signal, the fireman and everyone else on the train is informed of the fact at once. True, if the engine runner after receiving the warning continues to dash on at full speed at the risk of his life the apparatus will not stop him; but what is the chance of such an occurrence? Has the investigation of any collision on record ever even suggested the thought that the engineman willfully attempted to wreck his train? Has it not always been established that he was asleep, unconscious or had overlooked a signal? And should he be bent on suicide, is it likely that the fireman would care to join him?

Prevention of Collisions

As the first step towards the prevention of collisions it is the writer's recommendation that all lines of railroad carrying any considerable traffic be equipped with automatic block signals as soon as possible. That these block signals be so installed that there is a caution signal for each stop signal not more than 3,750 ft. from the stop signal, and that each caution signal be equipped with an approved type of audible signal which will sound the alarm not less than 3 consecutive times when an engine is within 300 ft. of it unless the engineman performs some action in the cab which he could not perform unless he fully realized what he was doing and why he did it. The writer will stake his professional reputation that on a road so equipped the word collision would be unknown.

No doubt this suggestion will be met with derision. It will be said that the plan herein suggested is too incomplete; that it leaves a *possible* chance for the apparatus to fail to give the warning. To this the answer is that no engineering construction guards against or can guard against *possibilities*. All we can do is to guard against *probabilities*. No one can design a rail, a wheel or an axle which cannot possibly break and cause a derailment. Our best efforts end when we have

designed them strong enough to bear all reasonable stresses that we can foresee, add a fair factor of safety and carefully inspect them at the factory and while in service.

With the arrangement proposed a flagman must fail to do his duty, a signal must fail to give its proper indication, the warning device must fail to operate or the enginemen (fireman included) must fail to obey the warning, for a collision to occur. Knowing as we do that none of these chances is likely to occur oftener than once in many thousand times, what is the probability of enough of them occurring coincidentally to cause a disaster? Not once in many millions of times.

We must consider this question from a practical point of view. To equip a few miles of important terminal with a train control device of the most elaborate sort is not going to accomplish anything. We must spread this additional safety over a vast amount of mileage if we are to get results, and therefore we must consider a device within a reasonable cost figure. Collisions are costly and disgraceful. We must stop them everywhere, not only at a few isolated places. The arrangement herein suggested can be added to an existing automatic block system where separate distant signals are already provided, at a nominal cost; to an existing automatic block system where additional distant signals must be provided at a cost greater but not prohibitive, and to a new installation of automatic block signals at practically no increase over what the installation would cost without it.

Administration Seeking Way To Reduce Rates

WASHINGTON, D. C.

PRESIDENT HARDING and members of his cabinet are still giving a great deal of consideration to the railroad question in its relation to the whole program of trying to bring about a "return to normalcy" in general business conditions. Following the cabinet meeting on April 15 it was stated that no definite plan has yet been formulated but that it was possible some idea as to a program might be made known in another week. The various branches of the government, particularly Congress and the departments of commerce and agriculture, are receiving numerous complaints of the high rates and many opinions are expressed that lower rates on some commodities would produce more revenue for the railroads, but it is apparent that those in a position of responsibility in the matter feel it necessary to go slow in the matter of rate reductions until the possibility of reductions in the cost of transportation has become more clearly apparent. The decision of the Railroad Labor Board on the national agreements, which proved so satisfactory a compromise that it was claimed as a victory by both sides, was received with great interest in Washington and the fact that the board was able to find a compromise in that case fostered more hope than had previously existed of a peaceable outcome of the wage reduction controversy. It had been rumored that the President intended to call a joint conference of the railroad executives and labor leaders but he has not yet indicated that he has been convinced of the value of such a plan.

The most insistent demand for rate reductions has come from the agricultural interests, whose prices have fallen so rapidly that the rate level has become a factor of more importance than it is in the case of most commodities, and the question has been discussed from varying points of view at a meeting of the executive committee and delegates of the American Farm Bureau Federation. At the meeting on April 15 the speakers were Herbert Hoover, Secretary of Commerce, and E. E. Clark, chairman of the Interstate Commerce Commission.

"Unless we can readjust our railroad rates we will have to re-write the whole agricultural geography of the United States," said Mr. Hoover. "Railroad rates bear an intricate relation to our national prosperity and unless they are lowered quickly there will be a decided shifting of agricultural industry. Our present rates will soon move our granaries to foreign shores, for today it costs 30 cents per bushel to ship grain from Missouri to New York and the same amount can be shipped by water from Argentina for 10 cents. We should take a lesson from Europe and think of our agriculture. Those countries have developed industry to the detriment of agriculture; have imperiled their national defense and even their civilization. We cannot afford to depend upon overseas for our food, for it undermines our basic industry."

Chairman Clark pointed out, however, that "all the trouble does not lie with freight rates." Mr. Clark said:

Industries are entirely inter-dependent. If the Florida man did not grow oranges, the railroad in the orange belt would be of no value. If he did not have the railroad, his orange tree would be of no commercial value. These matters must be considered not only from the standpoint of the present,—the question of the movement of the crops of this year, but next year and future years must be considered. It is in the interests of the railroad that the fruit grower and the farmer should raise the largest crops possible, and should find a market for these crops. It is in the interests of the growers that there shall be efficient, well equipped railroads, able to provide a reasonable, adequate service when needed.

The California lemon grower is unable to sell his lemons in the east at prices that will pay him to produce, pack and ship his fruit. At first he blamed the freight rates, but as he looked further into the situation he found that the reason for this is the fact that the Sicilian lemon growers were bringing into this country and selling their lemons at $1.25 per box. That Sicilian grower has this advantage—he can take that $1.25 in our money back to Italy and it immediately is changed into a $5.00 bill. So in this particular instance the only way in which the California lemon grower can successfully compete is through the levying by Congress of an import tax that will give him a reasonable degree of protection. Then it may be that within a few years or a short time it will be possible to reduce that import tax.

Mr. Clark also referred to the wide difference between the price that the grower gets and the price that the consumer pays.

We have made it our business to inquire considerably out of our line in order to get a correct understanding of the situation. We have had complaints about the rates on fruits and vegetables in great numbers, and we have studied the situation as far as we have been able. For instance, there were complaints on the rates on spinach from the south. The facts are that the retail dealer in New York is paying just one-half what he paid last year, but his price to the consumer is identical with that of last year. Obviously the freight rate in that case is not what is preventing the grower from getting the price he got last year, and under those conditions we do not see where a reduction in freight rates would benefit the grower. This is because those who control the market will not pay any more than they are compelled to pay. The farmer is back to almost pre-war conditions so far as the price he gets for his wheat is concerned, but we are paying the same price for the same loaf of bread.

We produce and we must continue to produce large volumes of agricultural products in excess of what can be consumed in this country. We must find markets for the surplus in other countries, and we must do that in competition with products of the same kind in other parts of the world.

Not long ago the cotton growers received 42 cents per pound for cotton, now it is about 12 cents. That isn't because there is any great reduction in the price of cotton goods to the American people, but because the principal market for that cotton has disappeared temporarily in Japan. The fact is, they stopped buying the goods from the spinner in Manchester, England, and he stopped buying cotton here.

Some things have been learned from the experiences of recent years with regard to the question of transportation. The serious war conditions were the cause of largely increased expenditures for operation of railroads, including very large increases in compensation to their employees. Before the war the general average of operating expenditures was in the neighborhood of 65 per cent of the revenue,—somewhere between 65 per cent and 70 per cent. Now it is a little over 92 per cent. As soon as the railroads were taken over by the government during the war the operating expenses began to climb. The question of compensation of employees came up. A commission was appointed by the director general, and it recommended increases that aggregated very large sums of

money, and these increases were retroactive for some time before the decision was handed down. Shortly before that the director general made what might be termed a 20 per cent increase in rates. This was effective about half of the year, and the increase in wages was effective throughout the year. The result was a deficit. The increase in wages went on, but no further increase in rates was made, with the result that the government paid out of the Treasury very large sums to make up the deficit in the course of operating.

After the return of the railroads to the owners there was a period of six months during which the government guaranteed them against any heavier losses, and it was understood by everybody that there would be a general readjustment in the rates. That was undertaken in a careful, methodical way. At first it appeared that there would be no occasion for increase in passenger fares, but an increase of 30 per cent in freight rates which would produce the desired revenue. However, after careful consideration, more increased wages were awarded, which necessitated a recasting of figures and an increase of passenger fares.

For the first two or three months after these rates became effective it looked as though everything would work out as had been anticipated. Then for some reason or other the volume of business began to drop off and the ratio of expenses to income began to increase, and that condition has progressed until at the present time about 90 per cent of our gross revenues is expended in operating expenses. There are not more than ten, and perhaps not more than six individual roads that are earning the interest on their bonds. About one-half of the railroads are at the present time failing to earn their operating expenses and taxes.

During the year ended December 31, 1917, a little over 42 cents out of every dollar earned by the railroads was paid in compensation to employees. The amount thus paid during the year ended December 31, 1919, was 42 cents and during the year ended December 31, 1920, 60 cents.

Secretary Wallace of the Department of Agriculture declared in a statement on April 18 that a substantial reduction in freight rates would be "helpful now and would produce more traffic for the carriers." Secretary of the Treasury Mellon is quoted as having told newspaper men that a reduction of rates on certain commodities would have a stimulating effect on business but that he did not believe there could be a general reduction in rates at this time.

Senator Harris and the Congressional delegation from Georgia called on Chairman Clark of the Interstate Commerce Commission on April 15 to urge reductions in rates on fruits and vegetables from Georgia. As a result of the conference Lincoln Green, vice-president of the Southern, arranged to send a representative of the railroad to accompany representatives of the shippers on an investigation of the conditions referred to to see if the trouble was with the rates.

A large delegation of representatives of the Farmers' Union, accompanied by members of Congress from the agricultural states, had a conference with members of the Interstate Commerce Commission on April 20, urging an immediate reduction in freight rates on farm products. Commissioners Aitchison, Esch, McChord, Meyer and Potter were present, together with W. V. Hardie, director of traffic of the commission. Some of the commissioners were interested in suggestions as to how rates could be reduced in the face of the high prices still being paid by the railroads for labor and materials and Commissioner McChord pointed out that the railroads had had a deficit of $8,000,000 during the first two months of this year. After Representative Campbell of Kansas had insisted that rates be reduced at once, Commissioner Potter reminded him that the commission has not power to order summary reductions in rates and that at least 60 days would be required for action, using all the short cuts possible, even if the rates were proved to be too high.

Mr. Campbell suggested that the commission could call in the traffic officers of the railroads in three days and insisted that they would be very glad to reduce rates, but Director Hardie said that he had recently talked with some 30 railroad traffic managers on the subject and not one of them regarded the high rates as the most important factor in the present situation. He said that all admitted that they are a factor, but not the most important. Mr. Hardie also pointed out that during the latter part of last year when the railroads were handling a maximum tonnage under the present rates they had only earned at the rate of 3 per cent on the valuation. After the conference it was stated that the request for lower rates will be taken to the White House.

Cost of Railroad Fuel in 1920

WASHINGTON, D. C.

THE COST OF FUEL to the Class I railroads of the United States in 1920 was approximately $297,000,000 greater than the cost in 1919, according to a report made by the Interstate Commerce Commission to the Senate in response to a resolution calling for detailed information as to railroad fuel costs in the two years. A considerable part of the increase was on account of the increased quantity used in handling the increased amount of traffic. The cost, delivered, of bituminous coal was $641,224,469 for 155,343,635 net tons in 1920, as compared with $390,036,556 for 123,907,508 net tons in 1919. The cost at the mines was $531,854,888. The cost of anthracite delivered was $24,268,764 for 5,779,819 net tons in 1920, as compared with $16,661,149 for 4,796,353 net tons in 1919. In addition 55,590,783 barrels of fuel oil cost $97,874,094, as against $61,515,473 for 42,961,406 barrels in 1919. Coke cost $1,027,336 for 91,642 tons in 1920 and $1,476,000 was paid for wood and fuel.

The information called for by the resolution was obtained by a special sworn report. For all regions the average delivered cost of bituminous coal was $3.15 per net ton in 1919 and $4.13 in 1920, an increase of 98 cents a ton. At the mine, the increase in the cost per ton was 66 cents for contract coal and $1.70 for spot coal. The increases shown for New England are much higher. The increase in the delivered cost for bituminous coal in the New England region was $2.92 per net ton. The increase in the mine price of the bituminous coal purchased for this region was $1.27 per net ton, contract, and $3.79 spot. Anthracite coal delivered cost the railroads 73 cents a net ton more in 1920 than in 1919. The increase in the cost of fuel oil delivered was 33 cents a barrel.

The report includes the following table among others:

QUANTITY AND COST OF FUEL PURCHASED BY CLASS I STEAM ROADS IN THE CALENDAR YEARS 1920 AND 1919 BY TERRITORIAL REGIONS

Bituminous Coal

		Total cost at mine			Average cost per net ton		
						At mine	
Region and year		Contract purchases	Spot purchases	Total	Delivered	Contract	Spot
New England	1920	$15,115,872	$20,307,472	$35,423,344	$8.09	$3.79	$6.25
	1919	9,221,145	3,851,068	13,072,213	5.17	2.52	2.46
Great Lakes	1920	63,107,462	20,422,979	83,530,441	4.34	3.24	4.01
	1919	38,278,765	7,648,985	45,927,750	3.27	2.40	2.69
Ohio-Indiana	1920	91,970,515	39,052,060	131,022,575	3.78	3.22	4.46
Allegheny	1919	64,417,866	11,550,993	75,968,859	2.68	2.36	2.70
Pocahontas	1920	12,752,480	13,408,755	26,161,235	3.99	3.35	4.53
	1919	10,530,553	4,635,893	15,166,446	2.67	2.49	2.75
Southern	1920	61,140,751	13,782,880	74,923,631	3.75	3.08	4.68
	1919	40,440,790	4,395,892	44,836,682	2.88	2.48	2.87
Northwestern	1920	58,624,374	10,946,830	69,571,204	4.26	[1]3.13	[1]4.92
	1919	37,816,694	5,567,524	43,384,218	3.57	[2]2.89	[2]3.66
Central West'n	1920	69,689,470	7,875,027	77,564,497	3.52	3.22	3.38
	1919	46,906,140	4,129,259	51,035,399	3.04	2.68	2.78
Southwestern	1920	25,858,762	7,799,199	33,657,961	4.07	3.56	4.02
	1919	20,144,612	4,040,755	24,185,367	3.65	3.02	3.15
Total	1920	398,259,686	133,595,202	531,854,888	4.13	[3]3.22	[7]4.53
All regions	1919	267,756,565	45,820,369	313,576,934	3.15	[6]2.56	[8]2.83

Note—In computing the average cost per net ton certain tonnage for which the cost was not available was excluded. These exclusions, except as specifically stated in the footnotes below, are practically negligible in their effect and hence are not stated in detail.

[1]Arrived at by excluding 1,952,017 tons for which the price was not furnished.

[2]Arrived at by excluding 2,599,153 tons for which the price was not furnished.

[3]Arrived at by excluding 153,679 tons for which the price was not furnished.

[4]Arrived at by excluding 48,168 tons for which the price was not furnished.

[5]Arrived at by excluding 1,993,058 tons for which the price was not furnished.

[6]Arrived at by excluding 2,787,622 tons for which the price was not furnished.

[7]Arrived at by excluding 354,774 tons for which the price was not furnished.

[8]Arrived at by excluding 183,471 tons for which the price was not furnished.

The Earnings of Individual Passenger Trains

Describing Simple Method for Determining Whether Selected Trains Pay Out of Pocket or Other Costs

By T. W. Mathews
Assistant Treasurer, Seaboard Air Line, Portsmouth, Va.

THERE WAS AN AVERAGE of over forty vacant seats in all passenger coaches in all passenger trains in the United States in 1919. When we recall the crowded trains and the difficulty in getting accommodations in 1919, we question the accuracy of this statement. The average number of passengers per passenger car in 1919 was 13.5; other figures show that the average number of seats per car is at least sixty. For every crowded passenger car, therefore, with 40 passengers, there were four cars with seven passengers each, running on some branch line of small traffic.

Certainly this statement of facts is sufficient to show that railway managers need information as to the net earnings of individual passenger trains. Of course, many passenger trains will be continued, even at a loss. Regulating bodies, the necessities of the public, and other considerations will make the continued operation of a large number of non-paying passenger trains unavoidable. It would not seem that such reasons make it unnecessary for a careful study of individual passenger trains to be made. Certainly, if there are already more than enough trains between certain points any attempt to put on additional service should be resisted. If there is service at a loss, some effort should be made to reduce it. On branch lines it may be possible with profit to substitute self-propelled cars with a much smaller crew. In some cases Ford bodies have been mounted on trucks and have furnished, at greatly reduced expense, sufficient service on branch lines.

A comparative study from week to week, or month to month, of cash collections on individual trains may reflect discrepancies worthy of careful investigation.

Expenses of Individual Passenger Trains

A competent analyst of operating costs can in a few days set standards of out-of-pocket costs for all of the individual trains of a large system. A thorough and technical study of cost of passenger train operation would include an elaborate apportionment of all items of expense as between freight and passenger service, and the still further sub-division to individual passenger trains.

It is sufficient for practical purposes in setting a standard to consider only those expenses easily assignable to individual trains. Even so crude an allotment of expense to individual trains when compared with the earnings of such trains will "spot" the unprofitable runs.

Such standards can be used from month to month, and be rechecked from time to time as may seem necessary. The out-of-pocket costs include in a large degree fixed items of expense, such as crew and fuel. If desired the annual repair charge for passenger equipment and per locomotive for the types used can be added. Further charges for maintenance of track and for interest may be added, but are more difficult to develop.

CASH FARES COLLECTED

FROM	To	CASH FARE RECEIPT NUMBER	No. Cash Fares Collected	RATE	AMOUNT		IF EXCESS IS NOT COLLECTED GIVE REASON	WAR TAX	

TICKETS HONORED BUT NOT LIFTED

HONORED ON THIS TRAIN		NUMBER PASSENGERS				REMARKS
FROM	TO	LOCAL	LOCAL MILEAGE EXCHANGE CLERGY PARTY, ETC.	HOME COUPONS	FOREIGN COUPONS	

Fig. 1—Passenger Train Report

Earnings of Individual Passenger Trains

We now come to the task which looks on the surface as possible only at prohibitive cost—to price and tabulate for individual trains the millions of tickets collected yearly, even on the smaller of the large systems. Several roads have developed the plan described in this article, and have had it in successful operation for more than five years. On one road it requires one clerk at minimum pay of $115 per month for each 750,000 passengers. This means probably $5 to $10 per month per train. This does not seem a heavy charge when the advantages of having the information are considered.

The plan is based on systematic and orderly arrangement, and the use of mechanical devices. A form of conductor's report must be used containing report of "cash fares collected" and "tickets honored but not lifted," as shown in Fig. 1.

Instructions to conductors should be as follows:

The cash fare report must be made out complete in every particular as provided.

The summary at the foot of the report should be filled

out and should show the total number of cash fare passengers and the total amount of cash collected for fares, excess baggage, and parlor car seats, separately.

Mc Bee, S.C. to Poston, S.C.	Mc Bee, S.C.	Leland	Hickson	Segars	Hartsville	China	Lunn	Darlington	Warner	Florence	Fendall	Payner	Claussen	Perrot	Pamplico	Fleet	Waring	Kingsburg	Poston
Leland	20																		
Hickson	28	09																	
Segars	33	13	05																
Hartsville	48	28	20	15															
China	57	37	29	24	10														
Lunn	65	45	37	32	17	08													
Darlington	86	66	58	53	39	29	22												
Warner	100	81	72	68	53	44	36	15											
Florence	114	95	87	82	67	58	50	29	15										
Fendall	128	108	100	95	81	71	64	42	29	14									
Payner	138	118	110	105	90	81	74	52	38	24	10								
Claussen	144	125	117	112	97	88	80	59	45	40	17	07							
Perrot	165	145	137	132	117	108	101	79	65	51	37	27	21						
Pamplico	174	154	146	141	127	117	110	89	74	60	47	37	30	10					
Fleet	185	165	157	152	137	128	120	99	85	71	57	47	41	20	11				
Waring	193	173	165	160	146	136	129	108	93	79	66	56	49	29	19	09			
Kingsburg	206	186	178	173	159	149	142	120	106	92	78	69	62	41	32	22	13		
Poston	210	190	182	177	162	153	145	134	110	96	82	72	66	45	36	25	17	05	

Fig. 2. Typical Chart of Local Fares for Train Run

The report of tickets honored but not lifted should be filled out as provided on this form. Care should be taken to place the number of passengers in the proper column.

ductors are quite generally used, and may be found to be already in effect substantially as described.

The envelopes used by the conductors to enclose their reports to the auditor of passenger accounts show on the outside the train number and between what points it runs. Unopened envelopes are, therefore, passed direct to the clerk who compiles the earnings for that particular train daily.

Arrangements for Clerks

Care needs to be taken in the arrangement of the tables for the clerks. There should be a depressed surface in the center of the table, much the same as on some typewriter desks. This depression is to take care of a non-listing adding machine, so that the keyboard will be level with the top of the table. A bin should be provided at the end of the table. This bin should be divided into two parts to take care of worked and unworked reports.

Blank charts must be filled in similar to Fig. 2, showing local passenger fares between all points on each train run. A separate chart should be provided for each regular run.

Details of the Clerk's Work

The clerk is now prepared to go ahead:

1. Conductor's report on left side of desk.
2. Non-listing adding machine directly in front.
3. Chart of local passenger fares propped up immediately behind the adding machine.
4. Pencil in hand.

DAILY STATEMENT OF TRAIN EARNINGS

Month_____ Train No._____ From_____ To_____

Date	NAME OF CONDUCTOR	MILEAGE		CASH FARES		LOCAL				HOME COUPONS		FOREIGN COUPONS			
		No. Pass	Amount	No. Pass	Amount	No. Pass	Amount			No. Pass	Amount	No. Pass	Amount	No. Pass	Amount
1															
2															
3															
30															
31															
TOTAL															
Reduced															

Fig. 3. Daily Statement of Train Earnings

All tickets lifted, except mileage detachments, should be properly faced and arranged in four bundles, as follows:

1. Local.
2. Local mileage exchange, clergy, party, etc.
3. Home coupons.
4. Foreign coupons.

5. Daily statement of train earnings (Fig. 3) on the right side of the desk.

The number of passengers and the cash value of their journeys should be entered on Fig. 3, under "Mileage," from the special envelope report made by the conductor.

The number of passengers and cash value of the tickets

OFFICE AUDITOR PASSENGER ACCOUNTS

Comparative Statement of Train Earnings

For Month of

PASSENGERS				REVENUE					
Train No.	Cash Fares	Local Tickets	Through Tickets	Cash	Local Tickets	Through Tickets	Total Revenue	No. Miles	Revenue Per Train Mile

Fig. 4. Monthly Comparative Statement of Train Earnings

Each bundle should be arranged in station order "from" and "to." Mileage detachments should be enclosed in an envelope and reported as instructed thereon.

Both the form of the report, and the instructions to conductors should be entered also under "cash fares" from conductor's report of "cash fares collected."

The clerk should then count the number of local tickets sent in by the conductor, and include the number of local

tickets honored but not lifted. The two left hand keys of the adding machine should be used for this purpose. Half tickets should be counted as full passengers. The tickets should next be priced from the local passenger fare chart, using the right hand keys of the adding machine. Local tickets honored but not lifted should be priced along with the local tickets sent in. Half tickets should, of course, be priced at one-half of the full fare. Entry can now be made from the machine to Fig. 3 under "Local," showing the number of passengers and the value of tickets. The operator may then clear the machine.

In the same manner Fig. 3, "Home Coupons" and "Foreign Coupons," should be filled out. Two extra columns are provided for clergy, party and other special tickets.

The local passenger fare chart should be used for all classes of tickets. At the bottom of Fig. 3 the word "Reduced" appears to the left. A careful study should be made of home coupons, foreign coupons, and other special rates to ascertain what percentage relation each class bears to local rates. Percentages thus ascertained should be used to "Reduce" all columns necessary. No reduction, of course, is necessary for "Mileage," "Cash Fares" and "Local."

Some roads use distance mileages on the chart, and thus work a figure of passengers one mile for each class of tickets. Of course, to the figure of passengers one mile thus obtained the average rate for each class of tickets are applied.

Aggregate passenger train earnings for a year figured out as described above, as compared with an actual passenger revenue of $10,000,000 have shown a variation of less than 2 per cent. This has been true year after year. In making monthly comparisons, due consideration must be given to the fact that passenger train earnings include actual passengers handled. Passenger revenue includes the entire revenue from round trip tickets when sold, although the return portion may not be used until some weeks later.

A statement of individual passenger train earnings (Fig. 4) is compiled from Fig. 3 monthly, and placed in the hands of the management ten days after the close of each month.

As by-products of the method described, weekly estimated passenger revenue and earnings by states are being compiled with very little additional work by using Fig. 3 as a basis.

Rails Should Be Tested Head Down

By M. H. Wickhorst

Engineer of Tests, Rail Committee, American Railway Engineering Association

WHEN THE NECESSITY of testing rails first dawned upon the minds of railroad engineers, the method that naturally first suggested itself was to lay a piece of rail on two supports and drop a heavy weight upon it. Naturally also the rail was placed with its base upon the supports as it is in the track. Since that time, and particularly during the last ten years, our information has become much more extensive and precise concerning the physical and chemical properties of rails and concerning the manner of development of rail failures. In the last analysis, the drop test is a test of the tensile ductility of the part in tension, and as the performance of the rails as regards failures is determined mostly by the condition of the metal in the interior of the head, the tests of the rails should therefore be made with the head in tension, that is, with the head down.

In the early work of the rail committee of the American Railway Engineering Association, tests were made to compare the results of bending rail pieces with the head in tension with those with the base in tension. Tests were made both in the drop machine and by slow bending in the laboratory test machine. It soon developed that when the rail is tested with the head in tension, the ductility results obtained correlate well with the condition of the metal in the interior of the section as shown by chemical analyses, tensile tests and etchings. That is to say, the chemical segregation which is determined by comparing analyses of samples from the interior and outer parts of the head of the rail, has its counterpart in a low ductility when the rail is bent with the head in tension. Thus used, the drop test answers the purposes of the chemical segregation test. With the base in tension, the correlation between the chemical and bending tests is of the same trend, but the influence of interior segregation is not as definitely shown in reducing the ductility, particularly with thin base rails.

The shattering which sometimes occurs in the interior of the rail head causes a complete lack of ductility when the rail is tested with the head in tension but has no effect on the ductility with the base in tension. The writer recalls an instance where a rail specimen was tested base-down in the hydraulic bender, bending with considerable deflection and display of good ductility, but the recoil resulted in the specimen breaking into four pieces and revealing the presence of fissures in the head.

The non-parallelism of the results in the drop test with the base in tension with the interior condition of the ingot was also seen in some interesting and valuable work by the Bureau of Standards in which Hadfield sink-head ingots were compared with ordinary ingots. The interior of ordinary ingots contained considerable segregation of carbon and phosphorus which in the Hadfield ingots was confined to the top. This condition was reflected in the rails when tested by chemical analysis, tensile test and etching, but not when tested by the drop test. The drop tests were made with the base in tension but if they had been made with the head in tension, the rail committee's work indicates that the drop test results would have paralleled the results of the other tests.

A few remarks may now be made concerning the drop test, considered as a "shock" test. It has usually been thought that the drop test gave a "shock" that does not occur in slow bending as in the laboratory test machine, and would therefore be a more severe test. In order to determine quantitatively the difference between the two methods of bending, tests were made of companion pieces from several complete rail bars, using the entire ingots. The pieces were tested alternately by drop bending and by slow bending in the test machine and the outcome was that the ductility was the same in the two methods of bending. In other words, the ductility is not a function of the rate of bending between the limits of about 36 ft. per second as in the drop test and about 0.2 inch per minute as in the test machine. This difference in speed is as 129,600 to 1. There is, however, an important point of difference between the drop test and slower bending, in that in the drop test a break frequently starts in a seam in the base, either where it rests upon a support in base-down tests or where struck by the tup in head-down tests, and in such cases the full ductility of the material is not developed.

As bearing further on the question of the effect of the rate of bending on the results of the test, mention should be made of the work of the Pennsylvania Railroad with the hydraulic method of bending the rail, more usually called the "quick bend test" (the expression "quick" referring to the speed of the whole operation of testing and not the speed of the actual bending itself). That work likewise showed that the results of bending in the drop machine were about the same as those of bending in the hydraulic bender. The hydraulic bender probably has, however, several points of advantage as follows: the breaks are always normal and due to the exhaustion of the ductility of the part in tension, a record can be kept on an indicator card and then also the work of testing can be carried on much faster.

The reports of the investigations and other work on which

the above statements are based, are contained mostly in the proceedings of the American Railway Engineering Association from 1910 to the present time, but for the benefit of those who may be interested in looking up the basic data, a few of the references are mentioned below.

References

Comparisons of the head tension and base tension results are given in a number of reports, but probably the most convenient exposition is given in a diagram submitted in a report on the influence of size of ingots. (Proc. Am. Ry. Engrg. Assn. for 1912, Vol. 13, p. 702, fig. 18.)

The work of the Bureau of Standards mentioned above was described in Technologic Paper of the Bureau, No. 178, Steel Rails from Sink-Head and Ordinary Ingots, by George K. Burgess, December 15, 1920, p. 48. The paper was abstracted in the *Railway Age* for Feb. 4, 1921, and an abstract of the remarks concerning the drop test results appear on p. 334.

Several comparisons were made of the results of bending rails in the drop machine and by slower bending, the principal one being contained in a report on the influence of silicon. (Proc. Am. Ry. Engrg. Assn. for 1913, Vol. 14, p. 542.)

The hydraulic bend or "quick bend" method of the Pennsylvania Railroad was described and results of tests were given in the publications of the American Railway Engineering Association. (Proceedings 1917, Vol. 18, p. 1095, and 1919, Vol. 20, p. 591.)

Repairs in Outside Shops Defended

HEARINGS ON THE ALLEGED high prices paid by the Pennsylvania for repair work done in outside shops which were held by the Interstate Commerce Commission at Philadelphia the early part of the week have been adjourned until May 7. The hearings will be resumed at Washington. The hearings at Philadelphia were devoted principally to investigating the costs of repairs to 200 locomotives which were repaired under contract by the Baldwin Locomotive Company.

The position of the railroad in contracting for repairs by outside companies was defended by Samuel Rea, president of the Pennsylvania, in a statement authorized on April 17. Mr. Rea said that the "direct labor cost of doing this work in outside shops was much less than in railroad shops." He further called attention to the fact that at the time the contracts were entered into all the railroad shops were working to capacity and that "traffic demands upon the railroad necessitated getting outside assistance." His statement follows in part:

> From March 1, 1920, when the Pennsylvania Railroad resumed the management of its property, to December 31, 1920, locomotive and freight car repair work done outside the railroad's own shops has amounted to about six per cent of the total cost of this work. Locomotive and car repairs, from March 1 to December 31, 1920, cost the railroad approximately $140,400,000, of which $8,200,000 was for repairs in outside shops. In other words, out of every dollar spent for repairing Pennsylvania Railroad cars and locomotives, about 6.2 cents was spent for outside work.
>
> In newspaper articles published a few days ago, Mr. William H. Johnston, International President of the machinists' union, is reported to have said:
>
> > Only recently the Pennsylvania Railroad, in having 200 locomotives repaired in the Baldwin shops, spent $3,500,000 in excess of the cost if the road had done the work itself. Between $20,000 and $25,000 were spent in rebuilding obsolete locomotives that originally cost $9,000 thirty-three years ago.
>
> The total number of Pennsylvania locomotives repaired under contract was 200. On the other hand, 5,160 locomotives were given classified repairs in the railroad's own shops in addition to a very much greater number of locomotives that were given lighter repairs requiring more than twenty-four hours work each. All the locomotive repair work on the Pennsylvania Railroad during this period cost $79,112,800, out of which approximately $4,500,000 was for outside contract work.
>
> The lowest bill for any single locomotive repaired in outside shops was $12,661.13 and the highest $29,836.10. The oldest locomotive repaired was thirteen years old, and the newest one year old, instead of being thirty-three years old and obsolete. The smallest locomotive repaired weighed 235,000 pounds, and the largest 435,000 pounds. The original cost of the cheapest was $19,813; and the most expensive $83,560 instead of $9,000, as quoted above.
>
> The number of freight cars repaired outside was approximately 3,600 as compared with a total of 1,415,435 freight cars repaired in the Pennsylvania's own shops. The cars repaired at outside plants were all heavy repairs, whereas the above figure for cars repaired at the shops of the railroad includes heavy and light repairs. All the repair work to Pennsylvania Railroad freight cars during this period cost $61,300,000, of which approximately $3,700,000 was for work performed under contract in outside shops.
>
> The fact is that the direct labor cost of doing this work in outside shops was much less than in railroad shops. For instance: direct labor required to repair 3,066 of these cars in outside shops cost $608,494. The same work in railroad shops would have cost the Pennsylvania Railroad $1,000,360. The labor cost outside was 40 per cent less. Outside concerns paid their men on a piece work basis. Under the so-called "National Agreement," the Pennsylvania Railroad had to pay its men by the day.
>
> This Company accepted such contracts as the United States Railroad Administration had made and which were not yet completed and let contracts of its own on which 826 cars were repaired at prices relatively the same as the costs on the United States Railroad Administration contracts.
>
> Outside shop assistance was essential but it was kept down to a minimum. The 200 locomotives repaired under contract by the Baldwin Locomotive Works required the heaviest repairs and sending them outside, therefore, afforded the railroad shops greater capacity to handle more locomotives and return them to service more quickly.
>
> To summarize: the situation confronting the Pennsylvania Railroad, as well as practically every other railroad on March 1, was one of abnormal business demands upon its transportation facilities and an abnormal percentage of bad order equipment on its lines. Secondly, the business of the country demanded that the work be done at the earliest possible moment and the Pennsylvania obtained the best terms possible on work it had to have done outside. Finally, aside from the facts of the case itself, the records of performance of the railroad in meeting this situation fully warrant and justify the steps taken to meet it.

Among the witnesses who appeared at the hearing, besides Mr. Rea, who testified on April 19, were J. T. Wallis, general superintendent of motive power of the Pennsylvania; P. G. Blecke, an examiner of accounts for the Interstate Commerce Commission, and H. Boltwood, a mechanical engineer for the Railroad Administration. F. P. Walsh, attorney for the Railway Employees' Department of the American Federation of Labor, cross examined the witnesses in his capacity as counsel for the employees' organizations which instigated the investigation.

Mr. Wallis in his testimony contended that the Pennsylvania was justified in contracting with the Baldwin Locomotive Company for repairs to locomotives in view of the inability of the railroad shops to put them in shape in time to help relieve the congestion in traffic which existed at the time.

THE FOLLOWING ESTIMATE of the national census of Brazil taken on September 1, 1920, was published in a Brazilian newspaper on December 6, 1920, and forwarded by Consul General Haeberle: State of Alagoas, 990,278; Amazonas, 435,448; Bahia, 3,372,901; Ceara, 1,436,309; Federal District, 1,130,080; Espirito Santo, 479,188; Goyaz, 528,879; Maranhao, 853,050; Matto Grosso, 274,138; Minas Geraes, 5,788,837; Para, 992,290; Parahyba, 785,344; Parana, 674,113; Pernambuco, 1,975,441; Piauhy, 548,250; Rio de Janeiro, 1,501,969; Rio Grande do Norte, 552,071; Rio Grande do Sul, 2,138,831; Santa Catharina, 633,462; Sao Paulo, 4,823,100; Sergipe, 335,094; Acre Territory, 104,436. The total population was estimated at 30,553,509.—*Commerce Reports.*

Inefficiency Marks Government Operation Abroad

David Van Alstyne and F. H. Shepard Tell New York Railroad Club of Conditions on Foreign Roads

IN A PAPER read before the New York Railroad Club on April 15, David Van Alstyne of the American Locomotive Company, who has recently returned from a 17 months' journey around the world, discussed briefly some of the outstanding features of the many railroads with which he came in contact. The itinerary of this trip included South Africa, Portuguese East Africa, India, the Federated Malay States, Java, Australia, the Philippines, China and Japan. To Mr. Van Alstyne the most striking characteristic of a majority of the roads was that they were government lines and were, in his opinion, operated under conditions which were not at all conducive to efficiency, enterprise and loyalty to the service.

Evils of Government Operation

Of his impressions of government operation as he saw it abroad Mr. Van Alstyne said in part:

"With few exceptions, the railways traveled over were government owned and operated, the exceptions being some of those in India, which are government owned and privately operated. Many times I wished that the advocates of government operation, or the Plumb plan, might make the journey which I was making and hear what the railway officials had to say on the subject. The trend of their remarks to me was that there is interference from politicians, that it is difficult to maintain discipline, that there is a tendency to create useless positions and that in general there is a lack of enterprise, enthusiasm and loyalty to the service. For many reasons, chief of which is that in all countries where I traveled, with the exception of Australia, the railways employ mainly inefficient natives, it is impossible to make comparisons of statistics which would be fair to the government ownership side of the case, but the impression is that there are many more employees required on a government than on a privately operated road for a given volume of work.

"I cannot let this opportunity escape for observing that my travels have fully convinced me that government operation in this country would be a calamity from the standpoint of the public in general, of the railroad management and the supply and equipment people in particular, and especially of labor not in the service of the railways. If government operation of railways is as defective as it has seemed to me to be in countries where railways are small, what might we expect in this country where the mileage is greater than in all the rest of the world put together?

"However important the arguments of the shipping and employing classes against it may be, it seems to me that the laboring class not in the employ of the railways has even more to fear from it. From the very nature of the railway business, its organized employees are able to more nearly exact their demands than employees in other industries.

"To the extent that railroad labor increases unreasonably the cost of transportation other labor must bear the burden, either in the form of higher passenger and freight rates or higher taxes to pay for railroad deficits. This is what is now going on in most countries, including the United States, as a result of government control. I cannot see government ownership and operation, therefore, other than as rank discrimination between railroad and other classes of labor. Organized labor insists on uniform wages for everybody doing the same kind of work. It would seem that it has better arguments in favor of government control of everything or nothing."

A considerable portion of Mr. Van Alstyne's paper was devoted to a discussion of some of the peculiarities of construction, equipment and operation of the various roads which came under his observation. His impressions in this regard were published in the *Railway Age* of February 11.

Labor Conditions

From Mr. Van Alstyne's remarks it would seem that unionism has flourished everywhere; even the unskilled native workers have in many countries been organized. At Bulawayo, South Africa, he witnessed a conference between a general manager and 300 striking laborers of the semi-savage Matabele tribe. Regarding this conference he said: "A young Englishman translated for me as the conference progressed and explained that the general manager was trying to persuade the strikers to go back to work and send their committee to confer with him. The Matabele orators were willing to accede to the general manager's request but were trying to impress upon him that if the committee failed to get what they were sent for, they would probably be killed."

Of India, Mr. Van Alstyne said in part:

"The railway officials hold military rank and are subject to call for military service. All the mechanics, all the firemen and about half of the enginemen are natives. Skilled mechanics earn from 1 rupee 8 annas to 2 rupees a day (60 to 80 cents). One white mechanic is said to be worth about three natives except on duplicate work. Most Englishmen seem to think that traveling in India is the height of luxury. With the exception of one or two trains I was impressed quite differently."

Speaking of Australia he said:

"It is a white man's country with a labor government, minimum wage, arbitration, etc. Numerous strikes are going on continuously and the openly professed policy of labor is to limit output. The ratio of employees for the same output in railway and locomotive builders' shops was about three to one as compared with this country, as nearly as I could judge."

"The best judgment I could form for all countries, including Australia, where practically all labor is white," he said in conclusion, "is that in the shops and engine sheds they have about three times as many men for the same work as we do, but this, of course, would not mean that the cost is always higher because nowhere are wages anywhere nearly as high as ours."

Electric Traction in Foreign Countries

Railroad conditions in European countries as seen by an electric traction expert were outlined by F. H. Shepard, director of heavy traction, Westinghouse Electric & Manufacturing Company. Mr. Shepard has just returned from an eleven-weeks' trip through the more important European countries and he outlined his impressions as follows:

The high rate of exchange makes railroad development a difficult problem in almost all foreign countries. Efficiency of labor has fallen off and government operation has caused many undesirable conditions to arise. In addition a jealousy between some of the new countries has complicated the situation.

Traffic in England has fallen off to almost the same extent as it has in the United States. The equipment is in fair condition. In Sweden it was learned that a trip into Russia was a possibility but was extremely dangerous. Russia is in dire circumstances because of lack of transportation. The

absence of paint and lack of finish is particularly noticeable in Germany. Many employees are required for a comparatively small amount of work and some women are still employed in train service. Traffic movement is probably not more than 50 per cent of normal. The various electric plants are, however, in better general condition than the railroads and throughout most of the country there is evidence of a serious intent to get production started. Switzerland has suffered from the general depression, but is well off insofar as equipment is concerned. The depression has also had its effect in Italy and the situation has been complicated by strikes caused by Bolshevist propaganda. In France the railroads in the devastated regions have been fairly well restored. Business is slow in Belgium, but there are indications that there will soon be a resumption. Railroad equipment is in very fair condition. Holland has been doing a large amount of business.

The high cost of fuel and the difficulty of obtaining it have affected the railroads of most European countries and have made electric operation particularly desirable. Furthermore, each country is now more than ever desirous of being self-contained insofar as industry and transportations are concerned. The result of these conditions is an electrification program which is outlined roughly in this table:

RAILROAD ELECTRIFICATIONS (ROUTE MILES)

	In operation	Under construction	Proposed
Sweden	300	125	1,000
Norway	60	50	500
Germany	400	100	1,500
Austria	200	...	1,000
Switzerland	250	275	1,000
Italy	600	...	3,000
France	50	...	5,000
England	300	...	1,000
Holland	50	...	600
Belgium	...	...	500

New Members of Labor Board

PRESIDENT HARDING on April 16 sent to the Senate his nominations for three appointments to membership on the Railroad Labor Board, to succeed the three members whose terms expired on April 15. The new appointees are Ben W. Hooper, former governor of Tennessee, as a member of the public group, succeeding Henry T. Hunt; Samuel Higgins, former general manager of the New York, New Haven & Hartford, to succeed W. L. Park of the railroad group, and W. L. McMenimen, deputy president of the Brotherhood of Railroad Trainmen, to succeed J. J. Forrester of the labor group.

Mr. Hooper was born at Newport, Tenn., on October 13, 1870, and was graduated from Carson and Newman College, Jefferson City, Tenn., in 1890. He was admitted to the bar in 1894, and practiced at Newport. He was a member of the Tennessee House of Representatives in 1893 and 1895, was assistant United States attorney for the eastern district of Tennessee from 1906 to 1910 and was governor of Tennessee for two terms, 1911-1913 and 1913-1915. He is a Republican.

Mr. Higgins was born February 19, 1860, at San Francisco. He graduated from Sheffield Scientific School, Yale University, in 1881, in which year he entered the service of the Erie at Susquehanna, Pa., as a special apprentice. He served in various positions in the mechanical department until April 1, 1892, when he was appointed assistant superintendent of motive power. In 1894 he became superintendent of motive power of the Lehigh Valley and on April 1, 1901, he was appointed superintendent of motive power of the Union Pacific. On July 1 of the following year he went to the Southern as mechanical superintendent and remained in that position until April 1, 1904, when he became general manager of the New York, New Haven & Hartford. On January 1, 1912, he left the New Haven and spent the following three years as a technical expert for various railroads in this country and in Europe. From February 25, 1915, until April 1, 1917, he was president of the Standard Heat & Ventilation Company and since the latter date he has been vice-president of the Vapor Car Heating Company, with headquarters at New York.

Mr. McMenimen was born at Cambridge, Mass., and is about 40 years of age. He was employed for several years as a trainman on the Boston & Maine and became state legislative representative of the Brotherhood of Railroad Trainmen in Massachusetts. For several years he has been in Washington as assistant national legislative representative of the Brotherhood and he was recently appointed deputy president.

The Senate committee on interstate commerce held a meeting on April 18 to consider a report to the Senate on the confirmation of the new members of the Railroad Labor Board but decided to withhold action temporarily because members wanted time to obtain additional information regarding the men. Senator Cummins said the committee would consider the matter again before Thursday. A protest against the confirmation of Mr. McMenimen's appointment by the Senate will be made by the United Brotherhood of Maintenance of Way Employees, according to J. B. Malloy, vice-president of that organization, who objected to Mr. McMenimen's appointment both because he makes the second representative of the train service brotherhoods on the board and on the ground that he was nominated by the Order of Railroad Station Agents, which includes some of the so-called "subordinate officers."

S. Higgins

W. L. McMenimen

B. W. Hooper

Labor Board Rules National Agreements End July 1

Hearings on Revision of Present Wage Scales Begun. —Carriers File Voluminous Data

THE LONG controversy over the railway employees' demand for the perpetuation of their national agreements was ended on April 14 by a decision handed down by the Railroad Labor Board which sustained some contentions of both the carriers and employees. The award abrogated national agreements, remanded the negotiation of new agreements to the individual carriers and their own employees, and upheld the railroads' interpretation of the principle of collective bargaining and their contention that varying local conditions should govern in fixing rules and working conditions. In these respects the decision was favorable to the railroads. The award also outlined 16 principles with which the new agreements should be consistent. This constitutes one of the chief points for which the employees' representatives have been fighting. And accordingly, both sides have expressed satisfaction with the terms of the decision.

Text of the Board's Decision on National Agreements

After outlining the history of the controversy the decision said in part:

The evidence and arguments submitted in this case support the following conclusions:

The duty imposed by Section 301 on all carriers and their officers, employees and agents to consider and if possible to decide in conference all disputes between carriers and their employees has not been performed by the parties hereto either with regard to the wage or the working conditions portion of this dispute. The record shows that the representatives of the carriers were unwilling to assume the responsibility of agreeing to substantial wage increases. Hence, the conference of March 10 to April 1 on the side of the carriers was merely a perfunctory performance of the statute. Nor was the action of the organizations with regard to the individual carriers more than perfunctory. Naked presentation as irreducible demands of elaborate wage scales carrying substantial increases, or of voluminous forms of contract regulating working conditions, with instructions to sign on the dotted line, is not a performance of the obligation to decide disputes in conference if possible. The statute requires an honest effort by the parties to decide in conference. If they cannot decide all matters in dispute in conference, it is their duty to there decide all that is possible and refer only the portion impossible of decision to this Board.

Although Section 301 has not been complied with by the parties, the Board has jurisdiction of this dispute as it is and has been one likely substantially to interrupt commerce.

The carriers parties hereto maintain that the direction of this Board in Decision No. 2, extending the national agreements, orders, etc., of the Railroad Administration as a *modus vivendi* should be terminated at once; and that the matter should be remanded to the individual carriers and their employees for negotiation and individual agreement.

The organizations maintain that the national agreements, orders, etc., with certain modifications desired by the employees should be held by this Board to constitute just and reasonable rules; and should be applied to all carriers parties to the dispute, except to the extent that any carrier may have entered into other agreements with its employees. They maintain that local conferences requiring necessarily the participation of thousands of railroad employees for several weeks would constitute an economic waste and would produce a multiplicity of controversies as well as irritation and disturbance. They also urge that to require local conferences would be to expose the local organizations on the several carriers to the entire power and weight of all the carriers acting through the Association of Railway Executives on the conferring carrier, that such a disparity of force would produce an inequitable result highly provocative of discontent and likely to result in traffic interruptions. They, accordingly, insist that the conference should be national.

The carriers maintain that rules negotiated by the employees and officers who must live under them are most satisfactory, that the participants in such negotiations know the intent of the rules agreed to and advise their fellow workmen and officers accordingly thereby avoiding a litigious attitude on both sides, that substantial differences exist as between the several carriers with relation to the demands of the service, necessary division of labor and other factors which differences should be reflected in the rules, that these local differences can be given proper consideration only by local conferences. The carriers refuse to confer nationally.

The Labor Board is of the opinion that there is merit in the contentions of each party and has endeavored to take action which will secure some of the advantages of both courses.

This Board is unable to find that all rules embodied in the national agreements, orders, etc., of the Railroad Administration constitute just and reasonable rules for all carriers parties to the dispute. It must, therefore, refuse the indefinite extension of the national agreements, orders, etc., on all such carriers as urged by the employees.

This Board also deems it inadvisable to terminate at once its direction of Decision No. 2 and to remand the dispute to the individual carriers and their employees. Such a course would leave many carriers and their employees without any rules regulating working conditions.

If the Labor Board should remand the dispute to the individual carriers and their employees and should keep the direction of Decision No. 2 in effect until agreements should be arrived at, it is possible that agreements might not be arrived at.

The Labor Board believes, nevertheless that certain subject matters now regulated by rules of the national agreements, orders, etc., are local in nature and require consideration of local conditions. It also believes that other subject matters now so regulated are general in character and that substantial uniformity in rules regulating such subject matters is desirable.

The Board also believes that certain rules are unduly burdensome to the carriers and should in justice be modified. It may well be that other rules should be modified in the interest of employees.

To secure the performance of the obligation to confer on this dispute, imposed by law on officers and employees of carriers, to bring about the recognition in rules of difference between carriers where substantial, to preserve a degree of uniformity in rules regulating subject matters of a general nature, to prevent to some extent the operation in negotiations of a possible disparity of power as between the carriers and their employees, and to enable the representatives of employees of each carrier and the officers of that carrier to participate in the formulation of rules under which they must live, the Labor Board has determined upon the following action.

Decision

1. The direction of the Labor Board in Decision No. 2, extending the rules, working conditions and agreements in force under the authority of the United States Railroad Administration, will cease and terminate July 1, 1921.

2. The Labor Board calls upon the officers and system organizations of employees of each carrier parties hereto to designate and authorize representatives to confer and to decide so much of this dispute relating to rules and working conditions as it may be possible for them to decide. Such conferences shall begin at the earliest possible date. Such conferences will keep the Labor Board informed of final agreements and disagreements to the end that this Board may know prior to July 1, 1921, what portion of the dispute has been decided. The Labor Board reserves the right to terminate its direction of Decision No. 2 at an earlier date than July 1st with regard to any class of employees of any carrier if it shall have reason to believe that such class of employees is unduly delaying the progress of the negotiations. The Board also reserves the right to stay the termination of the said direction to a date beyond July 1, 1921, if it shall have reason to believe that any carrier is unduly delaying the progress of the negotiations. Rules agreed to by such conferences should be consistent with the principles set forth in Exhibit "B," hereto attached.

3. The Labor Board will promulgate such rules as it determines just and reasonable as soon after July 1, 1921, as is reasonably possible and will make them effective as of July 1, 1921, and applicable to those classes of employees of carriers parties hereto for whom rules have not been arrived at by agreement.

4. The hearings in this dispute will necessarily proceed in order that the Labor Board may be in position to decide with

reasonable promptness rules which it may be necessary to promulgate under Section 3 above.

5. Agreements entered into since March 1, 1920, by any carrier and representatives of its employees shall not be affected by this decision.

Sixteen Principles to Govern in New Agreement

Exhibit "B," mentioned above, sets forth the principles believed by the Board to be just and reasonable in governing working conditions as follows:

1. An obligation rests upon management, upon each organization of employees and upon each employee to render honest, efficient and economical service to the carrier serving the public.
2. The spirit of co-operation between management and employees being essential to efficient operation, both parties will so conduct themselves as to promote this spirit.
3. Management having the responsibility for safe, efficient and economical operation, the rules will not be subversive of necessary discipline.
4. The right of railway employees to organize for lawful objects shall not be denied, interfered with or obstructed.
5. The right of such lawful organization to act toward lawful objects through representatives of its own choice, whether employees of a particular carrier or otherwise, shall be agreed to by management.
6. No discrimination shall be practiced by management as between members and non-members of organizations or as between members of different organizations, nor shall members of organizations discriminate against non-members or use other methods than lawful persuasion to secure their membership. Espionage by carriers on the legitimate activities of labor organizations or by labor organizations on the legitimate activities of carriers should not be practiced.
7. The right of employees to be consulted prior to a decision of management adversely affecting their wages or working conditions shall be agreed to by management. This right of participation shall be deemed adequately complied with, if and when, the representatives of a majority of the employees of each of the several classes directly affected shall have conferred with the management.
8. No employee should be disciplined without a fair hearing by a designated officer of the carrier. Suspension in proper cases pending a hearing, which shall be prompt, shall not be deemed a violation of this principle. At a reasonable time prior to the hearing he is entitled to be apprised of the precise charge against him. He shall have reasonable opportunity to secure the presence of necessary witnesses and shall have the right to be there represented by a counsel of his choosing. If the judgment shall be in his favor, he shall be compensated for the wage loss, if any, suffered by him.
9. Proper classification of employees and a reasonable definition of the work to be done by each class for which just and reasonable wages are to be paid is necessary, but shall not unduly impose uneconomical conditions upon the carriers.
10. Regularity of hours or days during which the employee is to serve or hold himself in readiness to serve is desirable.
11. The principle of seniority long applied to the railroad service is sound and should be adhered to. It should be so applied as not to cause undue impairment of the service.
12. The Board approves the principle of the eight hour day, but believes it should be limited to work requiring practically continuous application during eight hours. For eight hours' pay eight hours' work should be performed by all railroad employees except engine and train service employees, regulated by the Adamson Act who are paid generally on a mileage basis as well as on an hourly basis.
13. The health and safety of employees should be reasonably protected.
14. The carriers and the several crafts and classes of rail road employees have a substantial interest in the competency of apprentices or persons under training. Opportunity to learn any craft or occupation shall not be unduly restricted.
15. The majority of any craft or class of employees shall have the right to determine what organization shall represent members of such craft or class. Such organization shall have the right to make an agreement which shall apply to all employees in such craft or class. No such agreement shall infringe, however, upon the right of employees not members of the organization representing the majority to present grievances either in person or by representatives of their own choice.
16. Employees called or required to report for work, and reporting but not used should be paid reasonable compensation therefor.

Following the announcement of the award, spokesmen for the labor organizations hailed it as a complete victory, one vindicating their position before the Board. At the same time E. T. Whiter, chairman of the committee representing the railroads before the Board, said in commenting on the decision:

The Board has laid down certain principles which must be recognized, and subject to these principles, has abrogated the national agreements and remanded the negotiation of rules and working conditions to conferences between the individual railways and representatives of their own employees. While the representatives of the railways would have preferred that all the questions involved should be referred to conferences between the individual railways and their own employees, the decision reached has given opportunity for arrangements between individual railways and their employees which can be made much more reasonable than the rules and working conditions established by the national agreements, and which in a large measure can be adapted to the local conditions of each carrier.

The extent to which it will be practicable, under the principles laid down by the Board, to increase the efficiency and economy of railway operation is problematical. The decision will not permit the restoration of the rules and working conditions in effect on December 31, 1917, and to the extent that it prevents this it will prevent restoration of the efficiency and economy which formerly prevailed under private operation.

The Board approves the principle of the eight-hour day, but states that "it should be limited to work requiring practically continuous application during eight hours." This plainly indicates that the principle need not be applied to work that does not require such continuous application. The Board also says that "for eight hours' pay eight hours' work should be performed by all railroad employees" except those in train service, who are paid on a mileage as well as on an hourly basis.

These and other statements in the principles laid down by the Board clearly indicate its disapproval of rules which representatives of the railways have shown result in employees being paid for time greatly in excess of that actually worked. The entire tenor of the Board's decision is that the railways should be economically operated, that employees should render efficient labor for all the time for which they are paid, and that the artificial "pyramiding" of wages, which under the present rules has resulted in large waste, shall cease.

The Board has recognized the principle of collective bargaining but it does not recognize the interpretation placed upon it by the spokesmen of the labor unions. The spokesmen of the labor unions have taken the position that collective bargaining meant national bargaining between all the railways and the national labor unions. The Board, by remanding the determination of rules and working conditions to conferences between the individual railways and representatives of the majority of its own employees of each craft, has recognized the fact that true collective bargaining consists of negotiations between each railway and its own employees.

If both the carriers and the employees act in good faith in accordance with the spirit of the Board's decision, rules and working conditions will be established which will be more reasonable than those now in effect, and which to a large extent will have the merit of meeting the local conditions which vary widely throughout the country.

Wage Hearings Begin

In accordance with an order of the Board, announced in the *Railway Age* of April 15, (page 938), the wage question was reopened on April 18 when hearings were started to determine what constitutes a just and reasonable wage under present conditions for various classes of employees. At the time the Board's announcement was made, disputes between 26 railroads and their employees had been certified. When the hearings began the Board had docketed 92 disputes. These were consolidated into one case although each carrier was granted the right to make a separate presentation.

The fact that the three new members of the Board were not present at the beginning of these hearings led to vigorous protests against the opening of the case on the part of representatives of the employees. Only five members of the Board, including but one representative of the employees, were present. W. S. Carter, L. E. Sheppard, W. S. Stone and W. G. Lee, of the train service organization, speaking for the sixteen railway organizations, objected strenuously to hearings before the three new appointees had taken their seats.

They asked, in addition, for more time to prepare and present their cases and a separate hearing for the train service employees on the grounds that their pay and relationship to the transportation industry are entirely different from those of the shop crafts and other organizations and because there is no work in other industries comparable with the work of the train service employee. After a short recess the Board refused to yield its authority to hear the case immediately. It did, however, grant a time concession in allowing the carriers and unions, instead of one day each for the presentation of their cases, as it had announced, five days each for this purpose. The Board also ruled that there would be a week's intermission between the carrier's presentation and that of the unions and that an additional week would be allowed for rebuttal.

The railroad's arguments for wage reductions were opened by J. G. Walber, speaking on behalf of the eastern carriers and taking up those arguments which are common to all of the roads in that territory.

He presented a memorandum and statistical exhibits showing the reductions in wages in other industries and in the cost of living which have occurred since the present railway wage scales were fixed by the Board in July, 1920.

Mr. Walber showed by bulletins issued by the Bureau of Labor Statistics of the United States Department of Labor dealing with wage rates in a dozen important branches of industry, that very substantial reductions of pay were made in these industries in the period from January to March, 1921. The statistics cited, Mr. Walber pointed out, "indicate a general and widespread reduction in wages from 10 to 30 per cent—the majority of reductions are 15 per cent or over."

With reference to the cost of living, Mr. Walber said:

"It is common knowledge that about July 1, 1920, prices of commodities entering into the cost of living began to recede; also that the falling off in the demand for commodities generally began to be reflected in curtailment of the forces and reductions in wages paid in other industries. This situation became more and more pronounced toward the end of the year, and has been continuing steadily up to the present time. These conditions contributed to adjustment in the scales in other industries."

Mr. Walber also submitted statistics regarding the reductions in the cost of living, based upon compilations made by various commercial agencies and also by the Bureau of Labor Statistics and the National Industrial Conference Board.

"The latest figures available from the Department of Labor," he said, "are for the period ending December, 1920, while the National Industrial Conference Board has compiled its figures to March, 1921. By reference to the declines from the peak (July, 1920, when the present wages were fixed) to December, 1920, as shown by these tables, it will be observed that the Department of Labor Statistics indicate a decline in the cost of living of 7.4 per cent, and the figures of the National Industrial Conference Board a decline of 7.1 per cent. The decline to March, 1921, according to figures of the National Industrial Conference Board, is 17 per cent, and if the Department of Labor figures for March, 1921, were available it is reasonable to assume that the similarity in the results obtained by both organizations would have continued."

In substance, the exhibits filed by Mr. Walber showed that when the present railway wages were fixed in July, 1920, the cost of living was 104.50 per cent more than it was in 1914, while in March, 1921, it was only about 67 per cent more than in 1914, and is still declining. These exhibits also indicated that the average railway wage per annum is now about 133 per cent more than it was in 1914.

Following Mr. Walber's general presentation on behalf of the eastern lines, a statement was made on behalf of the railways in New England by C. L. Bardo, general manager of the New York, New Haven & Hartford. In this statement the changes which have occurred in the cost of living in New England, as disclosed by the report of the Special Commission on the Necessaries of Life in Massachusetts, were particularly dealt with. This showed that in July, 1920, when the present wages were fixed, the cost of living in Massachusetts was 102.6 per cent more than in 1913, while in March, 1921, it was only 66.4 per cent more than in 1913. The reduction shown in the cost of living since the present wages were fixed was 35.3 per cent. The statement on behalf of the New England lines says in part:

"From the evidence as to the reduction in the cost of living and rates of pay for positions of like service and responsibility in outside industries, which will be fully covered in the briefs submitted by individual roads, the New England roads believe that your Board is fully justified in fixing as maximum and reasonable wages the rates requested by the several lines. Your petitioners believe that the financial condition of the employers is worthy of some consideration. The regular reports of results of operation of the New England lines, which are matters of public record, show that even with the recent increase in rates your petitioners are failing by a substantial sum to meet costs of operation, to say nothing of fixed charges. This situation exists notwithstanding the most drastic economies which can be exercised, having due regard for the safety of operation."

It was shown that on the New England lines the hourly wages of track and work train laborers have increased since 1914 from 15 cents to 48½ cents, that the rates of shop and enginehouse laborers have increased from 16 cents and 17 cents to 48½ cents and 53 cents, and the rates of freight house laborers from 15 cents to 54 and 55 cents. The standard hours of work per week in 1914 were 60 hours, while since September, 1918, they have been 48 hours.

"The attention of the Board is invited to the fact that the increase in the basic hourly rates and weekly compensation vary between 140 and 240 per cent, whereas the increase in the cost of living at its peak was 102.6 per cent over 1913-1914 and at the present time is 66 per cent higher than in 1914."

Individual Carriers Present Their Cases

Following the presentation of these two general statements, the individual carriers began the submission of volumes of statistical analysis, charts and data relating largely to decreases in the cost of living and the wages being paid by outside industries for both skilled and unskilled labor at various points and comparisons between this data and respectively the increases which have taken place in the wages of railway employees and the present scale of railroad wages. The enormous amount of evidence presented to the Board during the past week makes its analysis at this time impossible. However, the character of the testimony being given by the carriers in support of their pleas for lower wage scales can be seen in the following brief abstracts of two of the presentations which have already been made.

One of the first large roads to present its case was the Pennsylvania whose statement and brief to the Board said in part:

In arriving at the amount of reductions we requested the employees to accept, exhaustive studies were made of the cost of living and the rates paid in outside industries located along the Pennsylvania. In connection with the reductions we desire to make in the cases of maintenance of way and structures and unskilled forces, shop employees and freight handlers, we direct the Board's attention to the fact that we have recommended that rates of pay proposed be varied territorially, according to the rates paid generally in the territories in question. In the case of certain signal department employees and shop employees, we also propose certain spreads of rates for the various crafts varying with the skill required for the particular operation performed.

We further call the attention of the Board to the fact that

prior to 1918, the spread of rates on the railroads for shop employees was very much greater than it is at present and attach an exhibit which shows the spread of rates on the Pennsylvania prior to 1918 as compared with now. It is the desire of the management eventually to expand the differentials recommended and adjust all of their rates in accordance with the skill required and with respect to conditions in the territories where these rates are applied.

We desire to call particular attention to the studies made of wages paid in outside industries marked Exhibit No. 8 which is the result of a study of 1235 plants and covers over 155,000 employees, or approximately three times as many employees as in these trades on the Pennsylvania. This exhibit clearly shows that the prepondering rates paid in outside industries are generally below those proposed in the carrier's submission and in addition, it is shown that there have been further reductions since the information was first obtained.

The exhibit referred to in the preceding paragraph shows that in comparison with the prevailing rate of 85 cents an hour now being paid by the Pennsylvania to shop employees and 62 cents an hour to helpers, the weighted average rates of pay in 1235 outside industries for similar work are as follows:

Number of men	Occupation	Weighted average rate per hour
51,586	Machinists	64.7 cents
4,536	Blacksmiths	66.1 cents
10,271	Boilermakers	64.3 cents
7,364	Sheet metal workers	65.8 cents
6,296	Electrical workers No. 1	60.9 cents
3,247	Electrical workers No. 2	61.9 cents
23,198	Carmen	60.9 cents
10,870	Moulders	70.0 cents
38,138	Helpers	49.4 cents

The total study summarized above takes in the entire territory from New York to Washington, Philadelphia, Pa., to Chicago and St. Louis, Mo., and northward to the Great Lakes.

The statement added:

We also submit in Exhibit No. 9, the trend of the cost of living in certain cities along the lines of the Pennsylvania, showing conclusively that the trend of the cost of living along the Pennsylvania follows generally the line established by the Bureau of Labor Statistics for the United States.

Concluding the Pennsylvania statement said:

The information presented is the most recent we have been able to obtain and if taken at a later date would unquestionably show a greater reduction in the cost of living and further reductions in rates of pay in outside industries. The information considered from all angles proves conclusively to our mind that the rates of pay now in effect are not just and reasonable and that we would have been justified in asking for lower rates than those presented to our employees.

Western roads began the presentation of their cases on the second day of the hearings and among the first of these was the Chicago & North Western whose brief is representative of those given to the Board in behalf of these carriers. It said in part:

"It is deemed important to submit the cause as to common labor first for the following reasons:

"1. The season of the year has arrived when it is necessary that the railway company employ its full and complete quota of common laborers in its maintenance of way department.

"2. There are thousands of common laborers now out of employment in the territory traversed by this company's lines of railroad.

"3. There can be no doubt but that the present minimum scale for common labor is greatly in excess of that paid in other industries.

"4. The present minimum scale for common labor upon the railroad imposes a financial burden which the company cannot meet if it is to employ the number of men now necessary for the proper maintenance of its property."

In support of this plea to reduce the wages of unskilled labor exhibits were filed showing:

1. That common labor can be employed at the present time at rates varying from 25 to 45 cents per hour according to the locality in which they are employed and that in a large part of the territory covered by the Chicago & North Western men can be obtained for 40 cents per hour.

2. That the rates being paid for unskilled labor in industries in the territory served by the North Western are substantially below the rates being paid under Decision No. 2.

"From an examination of these exhibits," the statement said, "it will be seen that there has been a marked decline in the wages of common labor for substantially all industries between the rates paid in April, 1920, and April, 1921."

Regarding the decline in the cost of living, references were made to the data prepared by the United States Bureau of Labor Statistics showing by means of weighted index numbers the decreases in the cost of commodities, both wholesale and retail, which have taken place since last summer when the peak was reached in commodity costs.

In presenting the case of the western carriers it was decided that six of the larger roads which cover that territory in general should carry the major part of the burden of proving that the decline in the cost of living and in the wages paid for comparable work in outside industries justify decreases in the wages of railway employees, the remaining carriers to file presentations covering peculiar local conditions.

It will be noted that there is no uniformity in the requests being made of the Board by the various roads. Some are asking for reductions in the wages of practically all of their employees, others for reductions in the wages paid unskilled labor, others for reductions in the wages of various classes of employees, the wage scales to vary according to the varying local conditions, while still others are asking for a return to the wage scales in effect prior to Decision No. 2. The manner in which the Board will act on these varying requests is unknown; its policy being to allow the carriers and employees to present their own cases in their own way.

St. Louis Southwestern Loses Case Before Board

A ruling in the controversy between the St. Louis Southwestern and its employees in pile driver, bridge and building, paint and house gangs and in tinner service was handed down by the Board on April 14 and announced on April 18. The decision upheld the employee's position throughout and criticized the carrier for the action it had taken in abolishing certain positions and thereafter contracting for the same work. The progress of the hearings in this case was described in the *Railway Age* of April 8, (page 903).

After reviewing the history of the controversy and the positions taken by both sides in the hearings held before the Board on April 1, the ruling said in part:

It is urged by the carrier that it has abolished positions, that they no longer exist, that the work formerly done by the incumbents of such positions is now being done by contract, and, that the persons performing said work are not employees but contractors.

It is not believed that any long legal disquisition is necessary to demonstrate the fallacy of this device to evade the obligations of Title III of the Transportation Act and of Decision No. 2 of the Labor Board. All employees of carriers are contractors. There is in every case a contract imposing an obligation of service on the one side and of compensation on the other. Nor are the persons performing the duties of the positions specified any the less employees of the carrier because bids may have been taken and the contract awarded to the lowest bidder. The question whether the persons performing the duties formerly attached to the specified positions are employees of the carriers or not employees, is to be determined by the character of their duties and not by the form of contract employed. It appears that the positions and occupations named, except cooks, have been long established in the railroad service, that the duties attached to them are duties which must be regularly performed year in and year out, and that such performance is necessary in order that the carrier may perform its duties to the public. These positions in general inhere in the service of a common carrier and are necessary to that service. This carrier con-

sidered them necessary, for after the abolition it re-established them by individual and special contracts.

It is found by the Labor Board accordingly that the persons performing the duties formerly allotted to the positions named, or substantially such duties, are in fact the employees of the carrier, that the pretended abolition of such positions was not in good faith, but was a device to evade the obligations of Decision No. 2 of this Board. Such a device cannot and will not be allowed to prevail. It can easily be seen that if a carrier may evade the decision of the Labor Board by abolishing a position and re-establishing it as in this case, there is an end to any obligation to obey a decision of the Labor Board as to wages, if the carrier is willing to employ this subterfuge.

As to track foremen and track laborers there seems to have been not even the "abolition" of the positions to mask the attempt at evasion. With regard to these positions, this carrier has very simply and directly violated Decision No. 2 and the plain provisions of the Transportation Act.

But it is urged that the compensation paid the carrier's "contractors" was arrived at by agreement and that such an agreement is within the authority set out in Decision No. 2 that changes might be made by agreement. This position is untenable.

For the reasons stated the Labor Board finds that the St. Louis Southwestern Railroad Company has violated Decision No. 2. It is the decision of the Labor Board that this carrier restore the said positions and the pay, duties and obligations of said positions to what they were on July 20, 1920, as established by this Board's Decision No. 2; and it is further decided that the persons serving in said positions just prior to the effective date of the order of the carrier be reinstated therein if they so desire, and that each such person so reinstated receive pay equal to what he would have received, if occupying such position, at the rate provided by Decision No. 2 from the date removed or reduced in pay to the date of reinstatement, less what any such person may have earned by personal service in the meantime.

If the carrier shall make it appear to the Board that this decision requires the reinstatement of employees in excess of the requirements of the service, this decision will be modified accordingly.

The presentation of cases on behalf of individual carriers ended on April 20, and the Board adjourned until April 28 in spite of the pleas of the employees' representative for additional time before being required to reply to the carriers' arguments for wage reductions.

The sudden ending of the National Agreements case left the labor organizations with several voluminous exhibits regarding the "inadequacies and inefficiencies of management" which had not yet been presented to the Board. These exhibits, prepared by W. J. Lauck, consulting economist for the labor organizations, have however been injected as evidence in the wage case dispute. The character of these exhibits filed during the past week has been outlined in previous issues of the *Railway Age*.

Freight Claim Reduction on the Central of Georgia

Special Drive on Careless Freight Handling Results in 50 Per Cent Reduction of Claims

By G. L. Candler
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A RECENT ARTICLE in one of the New York newspapers declared that to mention freight losses and damage to the average railroad man was to strike him between the eyes. The truth of this statement lies not only in the enormous expense of freight claims to the carriers in 1919, but also in the materially increased amount which they paid out in 1920. To the writer it would seem that loss and damage are chargeable largely to one thing—improper handling of freight and, further, that this improper handling occurs either when the freight is being received from the shipper, when it is being loaded or when it is being billed. He cannot agree with the opinion held by many, that improper packing is an important factor in causing loss and damage to freight. The classification rules in the final analysis are based on sound principles. If they are adhered to they offer adequate protection to the carriers by providing receiving agents with the right to refuse any shipment not in condition to stand ordinary transportation. This power to refuse improperly packed shipments should be exercised regardless of any pressure caused by competitive conditions. When we consider the relatively small number of shipments that are refused it would seem that shippers after all are reasonably careful in packing and marking their shipments for transportation. What, then, are the factors contributing to these heavy increases in loss and damage claims during the past two years?

Careful Supervision Is Lacking

It does not appear reasonable to suppose that indifference and inefficiency in freight handling are a natural consequence of the world war. If this were the case, the same carelessness would be reflected in other branches of transportation. It is true, however, that those in charge of and responsible for freight transportation have failed in many instances to give adequate service and direction in matters of claim prevention. It has been my experience and observation that the rank and file of the employees who handle freight are not only willing but anxious to co-operate with the management in any movement for better service. They must, of course, be informed of the conditions which they are asked to remedy and this work of education can be made to stimulate interest among all other employees. I would suggest that division officers hold frequent meetings for the sole purpose of discussing the causes of loss and damage of freight and for developing means of eliminating them. In the same way meetings for officers throughout the system should be held periodically, at which plans can be formulated for the entire organization. Claim prevention bulletins issued frequently to drive home some strong points, based upon a specific instance of loss or damage, are of great value in prevention work. Finally, much desirable information can be brought to the attention of the employees through a monthly or semi-monthly review of the claims paid, together with a summary of the facts in cases where the amount is very large or the facts surrounding the claim are unusual. I have recently had occasion to discover that the average employee at a freight agency welcomes this sort of information and desires suggestions that will improve his methods of handling freight.

"No Exception Week" Successful

The Central of Georgia has realized that without the closest co-operation of all officers and employees, any effort to reduce freight claims will fail utterly. To secure this very desirable combination of effort, and to make known the necessity for close supervision of freight handling, the com-

pany recently made a special drive for one week, known as "No Exception Week," which, incidentally, provided ample evidence of the results which this close co-operation can secure. The campaign was advertised among the personnel for a month before it was to commence. Numerous circulars and bulletins were issued, in addition to a great many personal letters sent out by officers of the transportation department to agents, conductors and yard men over the system. The purpose of this publicity was to drive home to our employees the serious situation which had developed from inefficient freight handling and to bring them to realize that better service was necessary immediately to stop this drain on the company's resources. A spirit of friendly rivalry was in evidence from the start, and a most remarkable and gratifying showing was made. The number of exceptions issued to cover over, short, and damaged freight during "No Exception Week" showed a decrease of approximately 95 per cent in comparison with the weeks immediately preceding the drive. More important than the campaign itself, however, has been the permanent interest which our organization has taken in claim prevention work. Statistics recently compiled indicate a reduction of 50 per cent in the number of exceptions filed since the campaign.

In my opinion considerable attention should be directed toward the duties of agents, since their functions are mainly concerned with freight handling. An especially careful study of conditions at each agency should be made in times of depression such as the present, so that any reduction in forces will not work to prevent adequate supervision by the agent and his assistants. We should not neglect to encourage the agent who displays evidence of interest in improving his methods, and we should be ready to co-operate with him by providing better facilities to aid him in securing more economical freight handling at his station.

Receiving Clerks Must Be Competent

I have referred to our classification requirements. There is one feature in this connection that should be considered carefully. Much more attention should be paid to the position of receiving clerk and, instead of being the lowest paid at an agency, it should be decidedly on the preferred list so that thoroughly competent employees can be made available. Our classification rules are both voluminous and complicated, yet very few receiving clerks are sufficiently familiar with them to be able to protect the interests of the company as they should be protected. Special inspectors have told me that they have found men acting as receiving clerks at important stations who had never heard of a classification or its rules. It is little wonder, then, that we find many instances where these rules are violated. Not only should the receiving clerks be competent, but they should be sufficiently numerous to insure a close inspection and check of every shipment offered for transportation at all times. Any number of packages, many of them valuable, cannot be identified and are disposed of at a great sacrifice because they were not properly checked at the point of origin. I am an advocate of inside marking and I favor instructing shippers to place some sort of an identification mark on each case as it is packed for shipment. Start all shipments right—that is, receive them properly, load them carefully and bill them correctly and they will have every chance of reaching their destination in first-class condition.

Many claims are caused by the loss of entire packages. Fifty per cent of the exceptions issued by the Central of Georgia, and I take it this condition obtains generally, are issued to cover over and short freight. To minimize this loss, particular care should be taken to bill freight strictly in accordance with the bill of lading that has been issued. Officers should insist that a check of waybills against bills of lading be made at the close of the day's business, notwithstanding the additional time required.

Capacity Car Loading Requires Care

The importance of increasing the average number of tons per car and the average tons per train is always before us. Economical and hence successful operation depends more on this than upon any other factor. Where sufficient tonnage of the proper class is available I hold that it is a distinct advantage to load the car to its capacity, provided, of course, it is destined to an agency or transfer point which has a force and facilities adequate to handle it. But when a car is loaded to capacity care must be taken to avoid piling heavy packages on light or fragile shipments, as this frequently causes considerable damage. When merchandise cars destined for long hauls are not loaded to their full capacity their freight should be bulkheaded. This can be done at a nominal cost and with proper care the bulkheading can be used a number of times.

An exception to this practice of capacity loading must be made in the case of merchandise cars which are to be worked locally by the train crews. These must be loaded light to avoid serious delays as well as to insure careful checking. To accomplish this end loading clerks and stevedores must be thoroughly familiar with the location of stations at which stops will be made so that the cars can be loaded with reference to the order in which they must be unloaded. We have found it advantageous to require loading clerks, agents and warehouse foremen to ride local freights periodically so that they can observe their own work and the methods of others as well. We encourage our conductors to criticize the methods followed at all times, letting them realize that proper loading of freight lessens their own work and responsibility. The average conductor has neither the time nor the inclination to make a full report on irregularities which come to his attention. To get around this we have provided them with a concise printed form which they can readily fill out and which is always at hand in the waybill pouch of each car. This idea has proved decidedly effective by bringing in reports which otherwise would not be made.

Conclusion

There is likely to be a certain amount of damage to freight no matter how carefully it may be loaded and braced. Emergency stops of long freight trains, the bursting of an air hose, or a careless stop at a water station are all likely to prove disastrous. When a train consists of more than 25 cars the locomotive should be detached before reaching a water crane at which a stop is to be made, unless the grade or some other physical conditions prevent. The same caution should be taken in inspecting air hose before a train leaves its terminal. It happens very frequently that the bursting of an air hose is accompanied by a shock so severe that not only is the freight damaged but the equipment suffers as well.

At the present time defective equipment, especially rolling stock with roofs, sides and doors in bad condition, is accounting for more damage to freight than at almost any time in the past. Until conditions are such that this equipment can be repaired, unusual care should be used in loading shipments that can be damaged by water or exposure.

Loss and damage to freight present a serious problem which must be solved quickly. No such drain on our revenues as this, which is wasting more than $100,000,000 annually, can be justified. If every one of us can be brought to realize that efficient handling means better service to our patrons and that better service to them means more traffic and revenue for us, a long step forward will have been taken. For certainly every one of us knows that additional revenue must be obtained.

WHAT THE RAILROAD brotherhoods are really up against is a combination of General Atterbury, general apathy, and the general public.—Columbia (S. C.) *Record*.

E. H. Shaughnessy

E. H. SHAUGHNESSY, assistant director of the Division of Transportation of the American Petroleum Institute, has been appointed second assistant postmaster general. This appointment has a two-fold interest to railroad men. It is noteworthy, in the first place, because Colonel Shaughnessy is a railroad man, and consequently is fitted by training for the duties of his new office which, it will be recalled, has jurisdiction over the railway mail service. Equally significant is the fact that Colonel Shaughnessy's selection apparently indicates the intention of the new administration to bring to an end the controversy between the carriers and the post office department over payments for the service of mail transportation.

This controversy has been of long standing. As early as July 28, 1916, on the recommendation of Postmaster General Burleson, Congress passed a law, over the opposition of the carriers, fixing tentative rates for the transportation of the mails on a space basis. The Interstate Commerce Commission, however, was directed to investigate the matter fully and to prescribe the rates and permanent basis for the future. On November 1 of that year the postmaster general issued an order changing the system of payments from a weight to a space basis, which he claimed, would materially reduce the payments to the railroads. This order of the postmaster general made full use of the "consent and approval" of the Interstate Commerce Commission for a proposed trial period, providing a comparison of the space and weight bases on "certain selected groups" of mail routes. The "certain selected groups" as interpreted by the post office department, included practically all the railway mail routes in the country and the "trial period" provided for was continued indefinitely.

E. H. Shaughnessy

Again, in January of this year, the attention of Congress was directed to the fact that, although the Interstate Commerce Commission had announced an increase in the rates which the post office department must pay the carriers for the transportation of mails, effective on March 1, 1920, as well as a readjustment, retroactive to November 1, 1916, the post office department had not yet asked Congress for the necessary appropriation to cover this obligation. It was further pointed out that the amount withheld from the roads was by no means negligible since the increase for the future had been estimated at $35,000,000 a year and the retroactive payments were expected to reach $95,000,000. With these and other incidents fresh in memory, railroad men will regard the appointment of a transportation man as second assistant postmaster general as an indication that efforts will be made to handle the hauling of the mails as a transportation problem, which it is.

As to the new incumbent himself, Colonel Shaughnessy was born in Chicago, on October 26, 1882, and entered railway service in July, 1899, as a telegraph operator on the Chicago & North Western. During the next 18 years he served continuously in various capacities on the North Western, both in Chicago and at other points on the line. On May 28, 1917, while serving as trainmaster, with headquarters at Chicago, he was granted leave of absence to enter military service. The War Department had just called on the railroads entering Chicago to raise a regiment of engineers, and Colonel Shaughnessy applied for service. He was asked to aid Colonel Langfitt in a civilian capacity in recruiting work, but was shortly commissioned first lieutenant and given command of a company in the regiment which became the well-known 13th Engineers.

He accompanied the regiment to France and remained with the organization during its first operations in the Verdun sector. In June, 1918, he was detached from the 13th Engineers and assigned to duty with the Transportation Corps, serving successively as general superintendent, assistant general manager, general manager and acting deputy general of transportation of the advance section. He was promoted to major in September, 1918, and to lieutenant colonel in February, 1919.

During the organization of the Transportation Corps, Colonel Shaughnessy collaborated with French military and civilian railway men in the preparation of a French-English book of rules for railway operation which was used by the American forces during the entire period of the war. He was awarded the Distinguished Service Medal by a general order of the War Department, was commended for conspicuous service at Chateau-Thierry, and was decorated with the Legion of Honor by the president of France. Colonel Shaughnessy returned to the United States in September, 1919, and was commissioned colonel in the Officers Reserve Corps, Engineers Section, in January, 1920. He was also included in the list of officers declared competent for General Staff duty without further training.

Upon his return from overseas, Colonel Shaughnessy resumed his duties with the Chicago & North Western, but a short time later resigned from railway service to accept an appointment as assistant director, Division of Transportation, American Petroleum Institute, with headquarters at New York City.

SINCE THE PERIOD immediately preceding the war the number of freight cars on the Italian railways increased from 90,000 to 120,000, while the number of locomotives in the same period fell from 4,400 to 4,200. This diminution accompanied an increase in the length of line operated amounting to 900 miles. Locomotives have not yet recovered from the hard usage undergone in meeting war demands. Proper repairs and the building of new locomotives were slighted during hostilities, and since the cessation of hostilities various dislocations and labor conditions have interfered with construction work in this line.—*Commerce Reports.*

Pacific Type Locomotives for the Reid Newfoundland

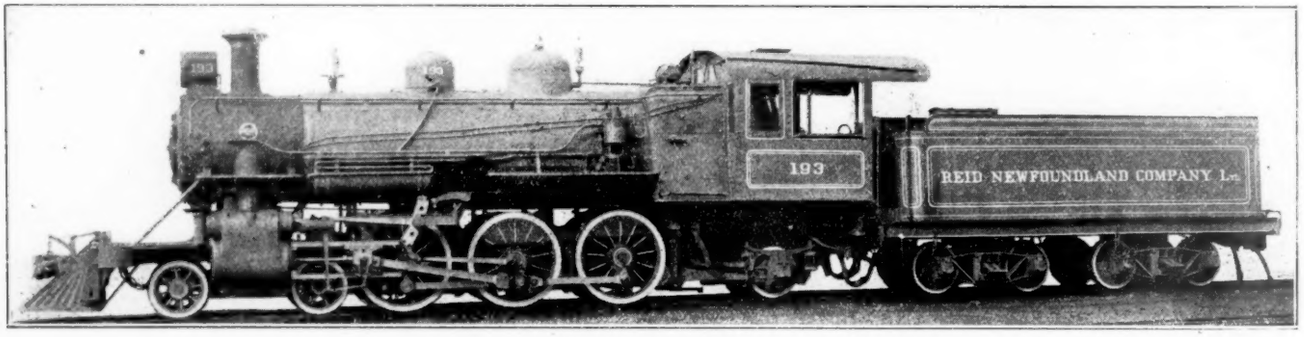
THE REID NEWFOUNDLAND COMPANY operates a railway on the island of Newfoundland, extending from St. John's to Port-aux-Basques, a distance of 546 miles. The character of much of the country is extremely hilly and the motive power used in passenger and freight service is designed to operate on grades of two per cent and curves of 14 degrees. The track is laid with 50 lb. rails and the gage is 3 ft. 6 in. Much of the passenger traffic is handled by locomotives of the ten-wheel type, the most recent of which were built in 1917. The Baldwin Locomotive Works has recently constructed six Pacific type locomotives which are designed to meet the requirements of heavier traffic. A brief comparison between the Ten-wheelers and Pacifics is as follows:

	Ten-wheel type	Pacific type
Cylinders	17 in. by 22 in.	17 in. by 24 in.
Valves	Balanced slide	Piston—8 in. diameter
Boiler type	Straight top	Straight top Belpaire
Diameter	56 in.	56 in.
Working pressure	160 lb.	170 lb.
Firebox—Length	89⅝ in.	66⅞ in.
Firebox—Width	29 in.	60⅛ in.
Tubes—Diameter	2 in.	5⅜ in. and 2 in.
Number	184	18, 5⅜ in.; 111, 2 in.
Length	12 ft. 0 in.	16 ft. 0 in.
Heating surface—Firebox	106 sq. ft.	93 sq. ft.
Tubes	1,148 sq. ft.	1,358 sq. ft.
Firebrick tubes	.....	12 sq. ft.
Total	1,254 sq. ft.	1,463 sq ft.
Superheater	.....	343 sq. ft.
Grate area	18 sq. ft.	27.6 sq. ft.
Driving wheels—Diameter	50 in.	52 in.
Engine truck—Front, diameter	26 in.	30 in.
Back, diameter	.....	30 in.
Wheel base—Driving	11 ft. 0 in.	10 ft. 0 in.
Total engine	20 ft. 5 in.	27 ft. 3 in.
Total engine and tender	47 ft. 9 in.	50 ft. 8 in.
Weight—On driving wheels	72,700 lb.	78,000 lb.
Total engine	92,100 lb.	115,000 lb.
Total engine and tender	148,000 lb.	199,000 lb.
Tender—Tank capacity	2,800 U. S. gal.	3,600 U. S. gal.
Fuel capacity	5 tons	9 tons
Tractive effort	17,300 lb.	19,250 lb.

The boilers of the Pacific type locomotives are of the straight top type with Belpaire fireboxes and are equipped with superheaters. The boilers are designed to carry a pressure of 200 lb., although the work-pressure used in service is 170 lb. The machinery is designed for a boiler pressure of 190 lb. should it be found desirable subsequently to raise the pressure. Brick arches are installed and are supported on tubes. The front of the firebox crown is supported on two rows of Baldwin expansion stays and the tubes are welded into the back tube sheet.

The cylinders are 17 in. in diameter with a 24 in. stroke and the steam distribution is controlled by 8 in. piston valves operated by Walschaert valve motion. The cylinders are fitted with cast-iron bushings. The frames have single front rails with extra heavy bumpers designed to resist snow bucking. Hodges trailing trucks are used. The equipment includes A.R.A. couplers, Westinghouse air-brakes, electric headlights, air sanders and steam heat. The extreme height of these locomotives is 12 ft. 6 in. and the width 9 ft. 3 in.

The tenders are of the eight-wheel type having a capacity of 3,600 U. S. gal. of water and 9 tons of coal. The frames are constructed of steel channels with steel plate bumpers. The trucks are of the arch-bar type with cast steel bumpers and chilled cast iron wheels.



Interesting Design of Passenger Engine for 3 ft. 6 in. Gage

Prices Still Higher Than Freight Rates

IN SPITE OF THE RECENT SHARP DROP, average prices are still on a higher basis than freight rates. This is shown in figures just compiled by the Bureau of Railway Economics. The following table is based on the wholesale price index number of the Bureau of Labor Statistics, and gives a relative freight-rate index number based on average receipts per ton-mile.

Year or month	Average railroad receipts per ton mile: Actual	Average railroad receipts per ton mile: Relative	Index number of wholesale prices
1913	.719	100	100
1914	.723	100	100
1915	.722	100	101
1916	.707	99	124
1917	.715	100	176
1918	.849	118	196
1919	.973	135	212
1920	1.052	146	243
Sept. 1920	1.151	160	242
Oct. 1920	1.226	171	225
Nov. 1920	1.263	177	207
Dec. 1920	1.209	168	189
Jan. 1920	1.192	166	177

Up to the close of 1920 rates lagged far behind prices. It is only since the drop in prices began that the margin between increase of prices and increase of rates has narrowed. For 1920, as a whole, prices exceeded rates by almost one hundred points, and even in January of this year prices were eleven points higher than rates.

Traffic in the last four months of 1920, with increased rates, was heavier in the United States than during the corresponding period of the three previous years. The depression which set in, was therefore not an effect of increased rates; it came from causes which have produced business depression all over the world.

The ANDALUCES RAILWAY in Spain will probably purchase 35 or 40 American locomotives in the near future in spite of lower bids from other manufacturers because of the ability of American concerns to make early deliveries, according to reports from Consul Gaston Smith at Malaga. It is indicated also that purchases of cars are being negotiated.

THE SOUTHERN PACIFIC has just completed a first aid station or emergency hospital at Bay Shore, South San Francisco shops, which makes the thirteenth emergency hospital unit on the Company's Pacific system. The unit has an operating room, small ward, kitchen, waiting room and doctors' office, and the station is in charge of a trained nurse at all times.

I. C. C. Authorizes Lackawanna Stock Dividend

Issue of Additional Common Stock as a Dividend—Capitalization of Entire Surplus Not Authorized

WASHINGTON, D. C.

THE DELAWARE, LACKAWANNA & WESTERN was authorized by the Interstate Commerce Commission, in a decision dated April 18 and made public on April 20, to issue $45,000,000 of additional common stock to be distributed as a dividend. The company had asked authority conditioned upon its disposal of its coal properties and acceptance of certain provisions of the Pennsylvania constitution to issue capital stock to the full amount of its corporate surplus, which amounts to about $90,000,000, or such part thereof as the commission might approve. The present capital stock of the Lackawanna is $42,220,550, and it has outstanding only $102,600 of bonds. Its leased lines have $44,811,710 of stock and $53,697,657 of bonds.

The commission finds that the evidence establishes (1) that the Delaware, Lackawanna & Western railroad has a large uncapitalized surplus; (2) that the present capitalization is below the actual investment or fair value of the property; (3) that the increase in capitalization which would follow the grant of authority hereinafter suggested would still leave the total capitalization of the applicant below the fair value of the property; and (4) that the remaining uncapitalized surplus will be sufficient to serve the purposes for which a surplus should be accumulated.

It also finds that the proposed issue of stock as a dividend has been justified to the extent of $45,000,000 and that to that extent it (a) is for a lawful object within its corporate purpose and compatible with the public interest, which is necessary and appropriate for, and consistent with the proper performance by it of service to the public as a common carrier, and which will not impair its ability to perform that service; and (b) is reasonably necessary and appropriate for such purpose; but that applicant has not justified an authorization of the issuance as dividends of the balance of its proposed capital stock in excess of $45,000,000 and that authority therefore should be denied.

The authorization of the issuance of $45,000,000 capital stock is conditioned in the order upon the issuance of evidences of indebtedness by the leased lines to applicant for the $10,344,048.64, carried on its books as advances to leased lines, and the transfer by the Delaware, Lackawanna & Western of that sum to the proper subsidiary account under investment in leased lines:

An abstract of the majority report follows:

Applicant's situation, is in a sense equivalent to that of a road having outstanding $42,220,550 of stock and $98,611,967 of funded debt upon which it pays yearly interest of $5,084,681, or about 5.15 per cent, with a total capitalization aggregating about $150,000 per mile of road and $52,100 per mile of track.

It is not shown what portion of the stock was paid for in cash, by service, or in property. Nor, as the effect of the many early consolidations does not appear, is it possible to state what portion may represent estimated value of merged properties. Stock dividends of $10,890,013 are included in the "cash value of proceeds" column. It is therefore a fair conclusion from the record that the original subscribers actually paid for the outstanding stock, in cash or its equivalent, representing direct sacrifice on their part, not in excess of $30,980,950.

Applicant distributed cash dividends of about 72 per cent upon its stock in 1909, of 22½ per cent in 1917, and of 20 per cent in every other year from 1905 to 1919, inclusive. The total dividends from 1853 to and including May 31, 1919, are given as $210,159,430.64, of which nearly $23,000,000 was in stock of applicant or of its subsidiaries and the remainder in cash. The average rate of dividends during this period was about 12.8 per cent.

Since 1853, according to one of its exhibits, applicant's net income from transportation has been $208,004,765.04, that from sale of coal $66,009,776.02, that from other sources $40,840,137.99, and its total net income $314,854,679.05. From this the exhibit shows payment of $210,159,430.64 in dividends and $14,233,472.38 in interest, leaving a book surplus of $90,461,776.03. The dividends exceeded the net income from transportation by $2,154,665.60 but net income from that source and sources other than sales of coal exceeded dividends by $38,685,472.39.

Applicant states that these surplus earnings are represented by the following items:

Investments in railroad property		$32,030,645.47
Other investments:		
In mining properties	$2,205,988.00	
In other non-operating properties	2,344,179.31	
In railroad, etc., stocks and bonds	24,824,046.25	
In other stocks, bonds, etc	14,229,585.67	
In advances to leased roads, etc	10,344,048.64	53,947,848.07
Current assets (excess over current liabilities)		3,136,714.80
Net accounts, U. S. R. R. Administration		1,326,567.69
Total surplus		$90,461,776.03

This result is obtained by deducting from the book investment in road and equipment, less reserve for depreciation, the aggregate outstanding stock and funded debt, and assuming that the remainder and the other assets listed were paid for out of surplus earnings.

Applicant contends that its actual surplus is much larger, since its coal properties are carried in these figures at their remaining original cost rather than their value, and since expenditures for additions and betterments were frequently charged to operating expense prior to 1907.

Authority to issue stock can not be claimed as a right. It is within our discretion, subject to the limitation that we shall grant authority only if we are able to make the necessary finding. If applicant is lawfully entitled to earn a return upon the fair value of property acquired out of surplus this right will persist whether or not the stock issue is permitted.

Applicant contends that we should permit the capitalization of the full surplus of the company. It argues that refusal to grant the application would seriously discourage, if not entirely prevent, investment by the public in railway stocks. It alleges that a refusal to grant this application would be public notice of a lack of advantage in investing in stock. And it suggests that in the event of denial of the application there would be no inducement in the future to use surplus earning for additions and betterments, and that stockholders would insist each year upon the distribution of all available earnings.

Applicant points out that the lawful declaration of dividends at a rate high in comparison with that of other railroads in the same territory has led the public to the unwarranted conclusion that applicant has received and is receiving an excessive return on its investment in property devoted to public use, and that the proposed increase in stock would tend to remove this source of distrust and suspicion. It suggests also that in case of consolidations with other lines applicant could secure much better terms if its capital stock more nearly represented its value than as at present.

There is no proof that the surplus sought to be capitalized is the result of excessive transportation charges. Traffic has been carried by applicant at rates, controlled by state or interstate regulatory bodies, substantially the same as those applicable over competing lines. And there is no showing that the return from transportation charges upon the fair value of applicant's property owned or used for common carrier purposes has been excessive. Clearly the amount of the return from the coal property is immaterial except as it tends to explain what might otherwise appear to be excessive carrier return.

The question of the reasonableness of applicant's past return is not in fact before us at this time. Where the public has found it expedient to adopt a *laissez-faire* policy to encourage utility development, it cannot be said that profits have been illegally collected in the absence of regulation. The title to the surplus has vested without limitation or condition in the corporation and benefits the shareholder. The doctrine of implied trust, sometimes applied by courts and commissions to donated property, has no application to excessive return, for the payment of rates carried with it no requirement that the funds be left in the business or used for the public benefit. Its strained application to carriers who have made additions and betterments

from surplus would only penalize those who came nearest to benefiting the public. The surplus from income was unrestricted legal property of the company, and ceased to be funds of the public, before the decision to divert it to either dividends or additions and betterments was made.

Such reasoning, however, does not warrant authorization of the issuance of securities merely upon a showing of invested earning.

To render the proposed issuance "compatible with the public interest" within the meaning of the statute, we are convinced that a substantial surplus should remain uncapitalized as a support for applicant's credit, providing for emergency needs, offsetting obsolescence and necessary investments in non-revenue producing property and serving as a general financial balance-wheel.

We do not share applicant's apprehension as to the effects which will follow the required maintenance of such a surplus. Such a reserve is a direct benefit to the stockholder. It maintains the market value of his stock and protects not only his dividends but his *pro rata* share of the assets available on dissolution.

The terms of possible future consolidations and mergers are not now before us and can be dealt with when the occasion arises.

Applicant claims a total surplus available for capitalization of $90,461,776.03. In view of the proposed sale of its mining property and distribution of the proceeds, the $2,205,988 shown as surplus invested in such properties may be dismissed from further consideration.

Several items of the remaining $88,255,788.03 of said surplus, do not fall within that class of assets which we deem it proper to permit applicant to capitalize.

Applicant, on May 31, 1920, held in its treasury stocks of railroad, terminal, transfer, and ferry companies to the amount of $9,151,048.75, and bonds of such companies to the amount of $15,672,997.50, making a total of $24,824,046.25. Of this amount, $56,450 was applicant's own stock. The balance consisted mainly of stocks and bonds of lines leased by applicant. The record discloses no intercorporate relations or other circumstances which bring these holdings within the sphere of securities which could properly be capitalized by a common carrier. It is not necessary for applicant to hold securities of its leased lines in order to operate its system if as it states its leases are in perpetuity. We are unable to form any sound opinion on the record before us as to lines controlled by stock ownership. Neither the actual value nor the earning power of the securities is shown. So far as the record shows all of these securities are in the same class with the recognized shifting assets. Applicant on that date also held in its treasury stocks of advertising, mining, timber and land companies to the amount of $1,662,813.37 and United States government bonds and certificates of indebtedness, municipal bonds, and steel company bonds to the amount of $12,566,772.30, making a total of $14,229,585.67. These are flexible assets which we deem it improper to permit applicant to capitalize. If it should be thought desirable to distribute the portion of its surplus invested in such securities among the stockholders applicant would be able to apportion the securities themselves or distribute the proceeds thereof. They are neither property used or useful in rendering the public service, nor an assured part of any surplus.

Nor is any reason manifest why applicant should be permitted to issue capital stock against its net account of $1,326,567.69 with the United States Railroad Administration which is merely an unadjusted balance.

The record contains no showing which would justify our authorizing applicant to capitalize its investments in non-operating properties. The reasons for acquiring and holding these properties are not stated, and no present or contemplated future use of them in connection with applicant's transportation service is shown.

Applicant's lines are stated to have been entirely rebuilt since 1900, the work, with the exception of the construction of the Lackawanna Railroad of New Jersey and the cut-off line in Pennsylvania being accomplished solely by the use of applicant's earnings. The testimony is that no charge was made to the capital account in connection with the excess cost of replacements prior to 1914 because no depreciation reserve was set up, and these expenditures were considered as off-setting depreciation. No comparison of these items is made of record, and the policy as to writing off abandoned property other than equipment is not shown.

Applicant is not seeking to capitalize any equity in its leases of railroad property, but only the amount of earnings said to have been invested by it in the properties of such roads. The evidence is that most of these roads are leased in perpetuity, but that some are leased for the corporate life of the subsidiary line. Without the leases before us we are unable to determine the length or nature of applicant's tenure, and cannot on the present record authorize applicant to capitalize its total investment in such property.

Applicant has advanced from its earnings $10,344,048.64 to leased and controlled lines. These advances are carried into the capital accounts of such roads and credited by them to applicant. They differ little from investments in leased lines, and when shown upon applicant's books as such investments may be capitalized by it.

Applicant seeks to capitalize $3,136,714.80, the excess of its current assets over its current liabilities as working capital necessary in the operation of the road. The record indicates that there are included in its current assets mining materials and supplies valued at $1,364,618.19 which doubtless would be turned over to the purchaser of its coal properties and therefore should not be considered in passing upon this application.

Commissioners Daniels and Potter wrote concurring opinions. Mr. Daniels concurred in the report so far as it goes, but refrained from giving entire adhesion to the basis which seems to underly the report, saying he is not persuaded that the entire remainder of applicant's surplus not allowed to be capitalized is requisite for the necessary purposes of a surplus. Mr. Potter did not concur in the view that the amount to be issued should be limited to $45,000,000, nor in all of the reasons or conclusions upon which the report is based. Commissioner Eastman filed a long dissenting opinion on the ground that the capitalization of surplus is contrary to the public interest and ought not to be permitted.

No opposition to the granting of the application was made by any state authority.

The Estimated Service Life of Western Tie Timber

By P. R. Hicks

Engineer in Forest Products, U. S. Forest Service, Madison, Wis.

DECAY IS INFLUENCED by a great variety of factors, among the most important of which are the species and quality of wood used, climate, soil, drainage, etc. Since various combinations of these factors will occur in different cases, the durability of a given species cannot be expected to be always the same. In most species of timber the sapwood is very much less durable than the heartwood, and the amount of sapwood present, therefore, is an important factor in the durability of untreated wood. Timber cut from dense (heavy) close ground wood is usually considered more durable than that cut from more rapidly grown wood. Decayed heartwood, which is often found when the tree is felled, may be a big factor in the short life of many ties, although a small amount of heart rot in cedar ties may not have much influence. Timber used in soils that are always wet or always dry is more durable than that placed in soils alternately wet and dry, and it usually resists decay much longer in cold than in warm climates.

Fire-killed or dead timber that is sound and free from decay is as strong and as durable as green timber. Such timber should be very carefully inspected for decay, however, and the unsound ties should be rigidly excluded. Douglas fir usually remains sufficiently sound to make ties for five to six years after being killed. After this the sapwood becomes infested with insects and decay, but the heartwood remains sound for eight to 10 years with the exception of the outer two or three inches. The interior of trees over three feet in diameter may remain sound for still longer periods. Lodgepole pine also remains sound and will make good ties for several years after being killed, but dead western yellow pine should be very carefully inspected, as it contains much sapwood and may deteriorate rapidly.

Definite and reliable data on the durability of several western tie species are not available, so the opinions of railway officers on the durability of these ties were solicited. The replies for the untreated ties may be summarized as follows:

Douglas fir is estimated to have a life of six years east and north of the Missouri and in New Mexico, Arizona, and California. In Oregon, Washington, Montana, Idaho, Colorado and Wyoming a life of seven to eight years is estimated. In California locally grown Douglas fir is estimated to last four to six years. In Colorado, native Douglas fir, known locally as red spruce, or red fir, is variously estimated to last from nine to 14 years. Estimates on the life of western larch in Montana, northern Idaho and western Washington are from five to eight years. Western yellow pine is said to last two to eight years in California and four to five years in Colorado, Idaho and Montana. Incense cedar is said to have a life of 10 to 12 years in California and western red cedar eight to 10 years in Montana and Idaho. Western hemlock ties are estimated to have an average life of five years in Washington, redwood and Port Orford cedar 12 years in California and Oregon, and lodgepole pine four to six years in Wyoming.

Fewer estimates were made on the durability of treated western species. With a zinc-chloride treatment Douglas fir was variously estimated to have a durability of seven to 15 years, the lower figure being for ties treated with but about ¼ lb. of zinc chloride per cubic foot in southern Idaho. Similar ties in Oregon, California, Arizona and New Mexico were estimated to last nine years. In Montana, with a treatment of 0.5 to 0.7 lb. per cu. ft., the estimate was 15 years. Western larch in Montana with a similar treatment was also estimated to last 15 years. Western yellow pine ties, treated with 0.5 lb. of zinc per cubic foot, are estimated to last 12 to 14 years in Colorado and 12 years in Wyoming, Kansas and Nebraska, but only seven to eight years in California if treated with but 0.25 lb. of zinc chloride per cubic foot. Lodgepole pine treated with 0.25 lb. of zinc chloride per cubic foot was estimated to last eight or nine years in southern Wyoming. The estimated life of creosoted Douglas fir and western larch ties in Washington, Montana and Idaho was 18 years, and western yellow and lodgepole pine 15 years.

These estimates are from various sources and represent the use of ties under many conditions of service. After a consideration of all the available data, the accompanying table was compiled, in which the durability of western ties has been estimated. The table is based on the assumption that all treated ties are well tie-plated. Since the estimates are based on western conditions they may not apply to eastern conditions. Probably from 30 to 50 per cent variation from these estimates in the durability of these ties may be expected on account of differences in climatic conditions.

ESTIMATED AVERAGE DURABILITY OF WESTERN TIES*

	Untreated, years	Treated with 0.5 lb. zinc chloride per cu. ft., years	Treated with 10 lb. creosote per cu. ft., years
Redwood	10-12	..	..
Port Orford cedar	10-12	..	..
Incense cedar	8-10	..	..
Western red cedar	7-9	..	..
Douglas fir	6-7	11	15
Western larch‡	6-7	11	15
Western hemlock	5-6	11	15
Lodgepole pine	4-5	11	15
Western yellow pine	4-5	11	15
Spruce	3-4	8	10
White fir (Abies concolor)	3-4	8	11
White fir (Abies grandis)	3-4	8	11
Red fir (Abies magnifica)	3-4	8	11
Engelmann spruce	3-4	8	11
Alpine fir	3-4	7	11

*Based on use of tie plates on all treated ties and the assumption that the ties are subject to heavy traffic.

‡Used only in Montana, northern Idaho and western Washington. Douglas fir ties in this region have about same average life as western larch.

Much more accurate and definite data are desirable on the durability of ties, and this can be obtained only by service tests in which accurate records are kept. The best durability records at present available are those in the files of the Forest Products Laboratory* and these indicate that treated and untreated ties of Douglas fir, western yellow pine, lodgepole pine and western hemlock often last longer than estimated in the accompanying table.

Rail Production in 1920

THE PRODUCTION of rails in the United States in 1920, according to the statistics issued by the American Iron & Steel Institute, amounted to 2,604,116 gross tons. Compared with 1917, the year of greatest rail production since the beginning of the European war, this figure is low by 340,045 tons or 11.55 per cent, but it shows an increase over the production of 1919 or 400,273 tons or of 18.16 per cent.

The production of rail for 1920 and that for each preceding year back to 1906 are given in Table 1. In studying the table it is of interest to note the decline in the production of rail made of Bessemer steel from 3,791,459 tons, or 95.31 per cent of the total, in 1906 to 142,899 tons, or 5.49 per cent, in 1920. In the latter year open-hearth rail comprised 89.63 per cent of the total and miscellaneous steels 4.88 per cent.

TABLE 1—PRODUCTION OF RAILS BY PROCESSES, GROSS TONS

Years	Open-hearth	Bessemer	Rerolled*	Electric	Iron	Total
1906	186,413	3,791,459	.....	.....	15	3,977,887
1907	252,704	3,380,025	.....	.....	925	3,633,654
1908	571,791	1,349,153	.....	.....	71	1,921,015
1909	1,256,674	1,767,171	.....	†	.....	3,023,845
1910	1,751,359	1,884,442	.....	†	230	3,636,031
1911	1,676,923	1,053,420	91,751	462	234	2,822,790
1912	2,105,144	1,099,926	119,390	3,455	.....	3,327,915
1913	2,527,710	817,591	155,043	2,436	.....	3,502,780
1914	1,525,851	323,897	95,169	178	.....	1,945,095
1915	1,775,168	326,952	102,083	.....	.....	2,204,203
1916	2,269,600	440,092	144,826	.....	.....	2,854,518
1917	2,292,197	533,325	118,639	.....	.....	2,944,161
1918	1,945,443	494,193	101,256	.....	.....	2,540,892
1919	1,893,250	214,121	96,422	50	.....	2,203,843
1920	2,334,222	142,899	126 698	297	.....	2,604,116

*Rerolled from old steel rails. Included with Bessemer and open-hearth steel rails from 1906 to 1910 inclusive.

†Small tonnages rolled in 1909 and 1910, but included with Bessemer and open-hearth rails for these years.

There has been an appreciable revival in the production of alloy steels, principally titanium, which had been reduced almost to the vanishing point in 1918, as shown in Table 2.

TABLE 2—PRODUCTION OF ALLOY-TREATED STEEL RAILS, 1910-1920

		Production by alloys		Production by processes		Production by weight per yard			
Years	Total production Gross tons	Titanium	Other alloys	Open-hearth and elect	Bessemer	Under 45 lb.	45 and under 85 lb.	85 and under 100 lb.	100 lb. and over
1910	257,324	256,759	565	27,389	229,935	..	70,170	187,154	
1911	153,989	152,990	999	38,539	115,450	..	27,097	126,892	
1912	149,267	141,773	7,494	40,393	108,874	21	5,426	143,820	
1913	59,519	47,655	11,864	33,567	25,952	*91	†9,414	50,014	
1914	27,937	23,321	4,616	27,447	490	*14	†1,168	8,301	18,454
1915	24,970	21,191	3,779	24,367	603	*6	†1,977	6,555	16,432
1916	28,562	26,493	2,069	27,675	887	..	†1,761	10,506	16,295
1917	16,535	15,273	1,262	16,535	.....	..	†335	6,671	9,529
1918	3,111	2,891	220	3,111	.....	..	†47	2,640	424
1919	6,476	6,207	269	6,476	.....	..	.....	3,920	2,556
1920	12,909	11,652	1,257	12,909	.....	..	†514	5,069	7,326

*Includes rails under 50 pounds.

†Includes 50 pounds and less than 85 pounds.

The total production of rail, as given in Table 1, includes in addition to new rails rolled, the rails rerolled from defective rails and from old rail. The total production in gross

*Detailed tie service test records can be obtained from the Forest Products Laboratory upon request. Applicants are requested to give the specific names of the timbers concerning which information is desired.

tons of renewed or rerolled rails so included is given in Table 3.

TABLE 3—PRODUCTION OF RENEWED AND REROLLED RAILS, 1913-1920

Years	Rerolled from new seconds, new defective rails, etc.			Rolled from old rails	Total rerolled
	Open-hearth	Bessemer	Total		
1913	13,052	30,741	43,793	155,043	198,836
1914	13,538	13,234	26,772	95,169	121,941
1915	6,477	2,652	9,129	102,083	111,212
1916	1,711	2,149	3,860	144,826	148,686
1917	1,825	7,182	9,007	118,639	127,646
1918	13,296	19,462	32,758	101,256	134,014
1919	1,933	5,766	7,699	96,422	104,121
1920	19,493	1,979	21,472	126,698	148,170

In Table 4, which shows the production of rails by weight per yard for each of several years, it is of interest to note that tonnage of the rails weighing 100 lb. per yd. and over forms a larger proportion of the total (28.0 per cent) than in any year since this weight of rail has been recorded separately. During 1918 and 1919 the proportion fell off appreciably because the Railroad Administration bought no rail weighing over 100 lb.

TABLE 4—PRODUCTION OF RAILS BY WEIGHT PER YARD, 1905-1920

Years	Under 45 pounds	45 and less than 85	85 and less than 100	100 pounds and over	Total Gross tons
1905	228,252	1,601,624	1,546,053		3,375,929
1906	284,612	1,749,650	1,943,625		3,977,887
1907	295,838	1,569,985	1,767,831		3,633,654
1908	183,869	687,632	1,049,514		1,921,015
1909	255,726	1,024,856	1,743,263		3,023,845
1910	260,709	1,275,339	2,099,983		3,636,031
1911	218,758	1,067,696	1,536,336		2,822,790
1912	248,672	1,118,592	1,960,651		3,327,915
1913	*270,405	†967,313	2,265,062		3,502,780
1914	*238,423	†309,865	868,104	528,703	1,945,095
1915	*254,101	†518,291	742,816	688,995	2,204,203
1916	*295,535	†566,791	1,225,341	766,851	2,854,518
1917	*308,258	†882,673	989,704	763,526	2,944,161
1918	*395,124	†665,165	888,141	592,462	2,540,892
1919	*263,803	†495,577	965,571	478,892	2,203,843
1920	*489,043	†433,333	952,622	729,118	2,604,116

*Includes rails under 50 pounds.
†Includes 50 pounds and less than 85 pounds.

Freight Car Loading

WASHINGTON, D. C.

THE NUMBER OF CARS loaded with revenue freight showed a considerable gain during the week ended April 9, according to reports compiled by the Car Service Division of the American Railway Association. The total for the week was 693,719 cars, an increase as compared with the previous week of 27,077 cars, although it was 107,000 cars less than for the corresponding week of 1920 and 17,000 cars less than for the corresponding week of 1919. The loading for the week of April 9 also represents an increase over the previous three weeks. During the first two weeks of March there was a gain but it was not maintained for the ensuing weeks.

There was a gain in the loading as compared with the previous week in all districts except the Central Western and the South Western, although the reports show a decrease as compared with 1920 in all districts. Increases as compared with the previous week were shown in the loading of grain and grain products, livestock, coal, forest products and merchandise and miscellaneous freight combined, and an increase as compared with 1920 was shown in the loading of grain and grain products. The coal loading was about 44,000 cars less than for the corresponding week of 1920. The loading of merchandise and miscellaneous freight, which reached a total of 449,493 cars, was greater than the loadings for any previous week this year, but was still about 34,000 cars less than the total loadings for the corresponding week of 1920.

The total car loading since January 1 this year has been 9,706,514 cars, as compared with 11,484,467 in 1920 and 9,869,739 in 1919.

The increase in loading was not reflected in the car surplus report, however. Previous records for the number of surplus freight cars on the railroads of the United States were again broken during the week ending April 8. The number of cars for which there was no freight averaged 507,427, or approximately 21 per cent of the total freight cars owned by the railroads of the United States.

This is an increase of over 11,000 cars as compared with the previous week and an increase of 210,000 cars since the first of the year. Of the total number of idle cars 261,294 were coal cars, an increase of about 6,000 cars in a week, while there were 176,916 surplus box cars, an increase in a week of 5,000.

At the time of the business depression in 1919, following the armistice, the number of surplus freight cars reached 451,739 for one week of March.

The summary follows:

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY—ALL DISTRICTS; COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. FOR WEEK ENDED SATURDAY, APRIL 9, 1921

Districts:	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Merchandise L.C.L.	Miscellaneous	Total revenue freight loaded: This year 1921	Corresponding year 1920	Corresponding year 1919	Received from connections: This year 1921	Corresponding year 1920	Corresponding year 1919
Eastern	1921	5,301	2,749	36,413	756	5,837	441	56,540	62,562	170,599	.....	.....	169,367	.....	.....
	1920	4,167	2,388	48,049	3,886	7,245	3,542	35,217	87,711	.....	192,205	175,099	.....	202,986	195,208
Allegheny	1921	2,261	2,582	39,115	2,667	2,237	881	40,770	48,543	139,156	.....	.....	88,944	.....	.....
	1920	1,982	2,854	52,693	7,024	3,454	4,236	39,576	70,524	.....	182,343	150,411	.....	117,212	116,697
Pocahontas	1921	121	91	15,447	50	1,290	37	2,594	5,840	25,470	.....	.....	13,323	.....	.....
	1920	137	127	20,383	637	1,826	239	146	9,407	.....	32,902	29,629	.....	16,965	14,559
Southern	1921	3,028	1,918	16,846	595	14,153	716	39,318	37,800	114,374	.....	.....	62,616	.....	.....
	1920	3,439	1,980	19,418	125	17,113	2,483	25,055	53,248	.....	122,861	115,113	.....	70,506	64,162
Northwestern	1921	8,201	6,232	3,571	542	14,631	695	27,487	28,939	90,298	.....	.....	40,496	.....	.....
	1920	8,949	7,517	7,980	1,203	19,336	1,932	20,572	37,686	.....	105,175	98,584	.....	50,601	48,791
Central Western	1921	9,663	9,568	13,123	117	3,899	1,496	28,895	31,779	98,540	.....	.....	43,769	.....	.....
	1920	7,198	8,886	16,711	470	5,466	2,601	22,599	40,513	.....	104,444	92,069	.....	53,410	51,691
Southwestern	1921	4,840	2,199	3,529	108	5,759	521	16,538	21,788	55,282	.....	.....	42,008	.....	.....
	1920	3,488	2,186	6,298	164	7,284	577	16,368	25,264	.....	61,629	50,377	.....	48,360	39,288
Total, all roads	1921	33,415	25,339	128,044	4,835	47,806	4,787	212,142	237,351	693,719	.....	.....	460,523	.....	.....
	1920	29,360	25,938	171,532	13,509	61,724	15,610	159,533	324,353	.....	801,559	.....	.....	560,040	.....
	1919	38,073	28,143	147,380	.....	52,405	15,866	.....	429,415	.....	.....	711,282	.....	.....	530,396
Increase compared	1920	4,055	.....	.....	.....	.....	.....	52,609	.....	.....	.....	.....	.....	.....	.....
Decrease compared	1920	.....	599	43,488	8,674	13,918	10,823	.....	87,002	107,840	.....	.....	99,517	.....	.....
Increase compared	1919	.....	.....	.....	4,835	.....	.....	212,142	.....	.....	.....	.....	.....	.....	.....
Decrease compared	1919	4,658	2,804	19,336	.....	4,599	11,079	.....	192,064	17,563	.....	.....	69,873	.....	.....

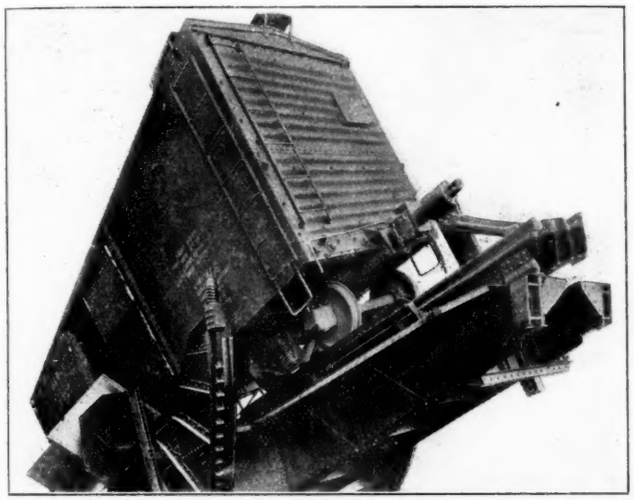
L.C.L. merchandise loading figures for 1921 and 1920 are not comparable as some roads are not able to separate their L.C.L. freight and miscellaneous of 1920. Add merchandise and miscellaneous columns to get a fair comparison.

April 2	1921	33,354	23,584	109,284	4,862	46,911	5,508	211,244	231,895	666,642	858,827	688,567	459,161	669,872	518,098
March 26	1921	32,960	24,339	122,189	5,179	49,516	6,480	211,028	236,161	687,852	900,386	713,275	479,635	696,447	557,736
March 19	1921	36,038	26,423	126,081	6,122	50,065	6,048	208,816	232,114	691,707	855,060	699,720	490,938	652,300	515,212
March 12	1921	37,896	27,847	136,097	7,103	52,484	6,864	205,334	228,443	702,068	819,329	701,266	494,588	614,091	522,988

A Rapid Tilting Cradle Unloader for Box Cars

Box Cars Unloaded With New Device as Rapidly as Gondolas —For Use Where Many Cars Are Handled

A TILTING CRADLE DEVICE which makes possible the mechanical handling of bulk material to or from box cars with a rapidity comparable with that which may be obtained where similar materials are handled in open top cars, has been developed by the Ottumwa Box Car Loader Company, Ottumwa, Iowa. The unloader is designed for use at large elevators, terminals and transfer points where the number of box cars loaded with bulk material to be handled daily requires an extensive equipment of



Unloading Side of the Cradle with Car in Unloading Position

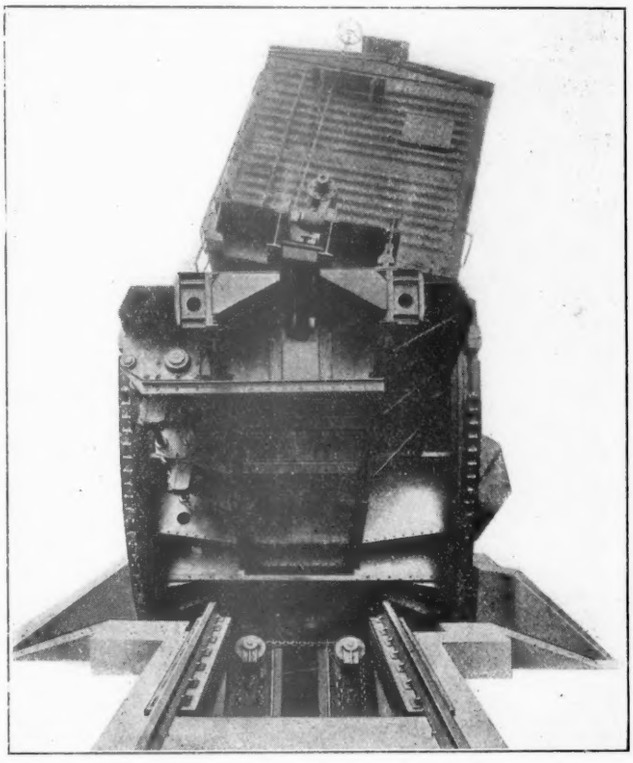
unloading pits and the expenditure of a large amount of labor under the usual methods of handling.

This device is capable of completely discharging the load from a box car in from five to nine minutes without the expenditure of any labor aside from that of the single operator. This time includes that necessary to place the car on and remove it from the cradle and depends largely on the facilities provided for moving cars to and from the unloader. The rapid unloading is effected by tilting the car longitudinally to a maximum angle of 46 deg. from the horizontal, at the same time tipping it sideways from 15 to 24 deg.

The unloader consists essentially of a cradle built up of steel plates and angles with rockers at the sides which are carried on eight large steel rollers. The cradle is approximately 70 ft. long and 15 ft. wide and is placed in a pit approximately 19 ft. in depth from the top of the rail, 72 ft. long and 17 ft. between the side walls. The rockers, which are built up of reinforced steel plates, are circular in contour. Around the circles they are faced with heavy steel rails of standard railroad section. These rails bear directly on the steel rollers, which are mounted on double-beam girders which in turn rest on the foundation in the bottom of the pit. Heavy posts, hinged at the bottom and moved mechanically from the operator's station, are placed in the pit where they may be swung into position under the ends of the cradle when it is in its horizontal position. The cradle is thus securely supported against tipping when being loaded or unloaded, and heavy locomotives or cars may safely be moved across the unloader.

The cradle is tipped toward either end by means of specially designed chains with pin-connected links, which are located around the circle of the rockers and attached to them at the ends with bolts, the nuts of which bear on coil springs to absorb the shocks of starting and stopping the tilting movement. The side tipping is accomplished by locating the track on a deck hinged at one side and lifted on the opposite side by pin racks and power driven sprockets.

The car is mechanically centered and held in position on the unloader by two grab arms on the cradle which disappear in small pits at either end of the foundation when not in use. After a car has been run on the unloader, these grab arms are raised out of the pits by motor driven sprockets and pin racks and are then moved simultaneously toward each other until they reach and center the car on the unloader. The heads of the grab arms are designed to bear against and hook over the top of the couplers to prevent the car from overbalancing when the cradle is tilted. Steel dogs engaging notched bars on the tilting deck prevent the grab arms from running back until the car is to be removed from



End View of the Unloader with the Cradle Tilt and Side Tip in Unloading Position

the unloader. They are then mechanically raised by means of wedges, permitting the grab arms to be removed from the car and lowered into the pits.

A hopper bin is provided in a pit at one side of the unloader, to receive the material discharged from the car and deliver it to a suitable conveyor system. A chute connects the car door opening with this hopper. The lower end of this chute is stationary while the upper end is movable and is arranged to telescope with the lower end. The movable section is propelled against the side of the car at the door-

way by means of a small air cylinder, which holds the chute firmly in position just below the floor of the car during the unloading operation.

For unloading cars regularly fitted with grain doors or with boards nailed across the doorway inside of the car, a grain door opener has been developed for use with the unloader. This device consists of a large square plate studded with barbs which is moved against the grain door or boards by air pressure. This device engages the door while the car is horizontal. When the car is tipped to the side the grain door is held stationary while the car moves away from it. At the same time a wedge is dropped to the floor of the car and is forced under the bottom of the grain door, thus assisting in removing the bottom board and in holding the entire door out of the way, after it has been removed. When the car is empty the boards are dropped back inside.

The unloader is operated by three motors. A 75-hp. motor is used to tilt the cradle toward either end and a 50-hp. motor is provided to operate the side tipping mechanism. The grab arms are operated by a 20-hp. motor. Both the side and end tilting mechanisms are operated through gear reductions to worm gear drives which automatically lock the cradle and tilting deck in any position when the power is shut off. In addition to this, both of these motors are fitted with air brakes by means of which the momentum of the moving parts may quickly be absorbed after the power is shut off. When compressed air for this service is not available from an outside source the unloader is fitted with a small air compressor, driven by a 5-hp. motor and a small air reservoir.

The operator's station is located outside the foundation at the track level and on the side of the car from which the material is to be removed, so that he may observe at all times the progress of the operation. He is also provided with signals, usually electric, which indicate the various positions of the travel of both the end and side tips.

In operating the unloader, after the car has been secured by the grab arms it is first tipped to the side, the grain door or boards across the door opening being removed at the same time. This permits the material in the center of the car to flow out under the lower board. At the same time the operator starts the motor which tilts the cradle longitudinally. As the end tilting continues the material in the high end of the car flows out. As soon as one end is empty the cradle motor is reversed and the other end is unloaded. The small amount of material which runs past the door during this second operation is removed by once again reversing the tilt of the cradle.

One of these unloaders has been installed by the Commission of Public Docks of the city of Portland, Ore., at Pier No. 5 of the new No. 4 Terminal. By its use a compact and flexible arrangement has been obtained whereby material may be handled directly from the unloading pit of the unloader by conveyor to the hold of a ship, to storage bins on the pier or to open top cars. The device is also used as a loader for stowing bulk material in box cars as it is unloaded from shipboard, from open top cars or taken from the storage bins on the pier. At this installation the machine has unloaded phosphate rock from box cars in a total of nine minutes per car, including the entire time of getting the car to and from the cradle.

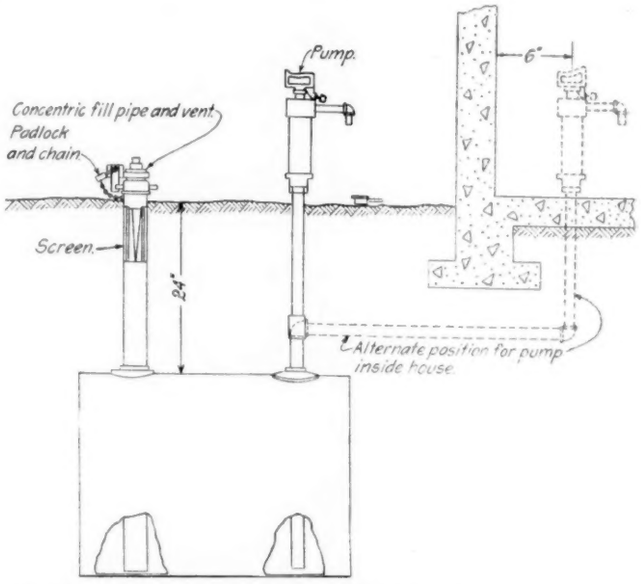
WHISKEY EASILY OBTAINABLE on Pullman cars was one of the items in the Pittsburgh (Pa.) Prohibition agent's notebook last month; and large numbers of empty bottles found on the ground along the line of the Pennsylvania Railroad constituted one of the bits of evidence supporting it; and on Sunday morning last, in Pittsburgh, a Pullman porter was arrested and 400 half-pint bottles of liquor, just brought to the station by a confederate, in five suit cases, were seized.

An Arrangement for the Safe Storage of Gasoline

SUPPLIES OF GASOLINE and other fuel oils must be provided at so many points on a railroad that it is very difficult to control the housing of these highly inflammable materials in a way that will avoid excessive fire hazard. For this reason, an account of a convenient storage outfit recently placed on the market is of interest. The elimination of drums and other shipping containers or receptacles means the elimination of fire hazard and loss in quality and quantity of oil through evaporation, leakage, spilling, etc. These storage outfits consist of an underground tank with a concentric filling pipe and vent and an outlet pipe equipped with the type of pump shown in the illustration. This pump consists of a seamless brass cylinder with a brass plunger and weatherproof housing over stuffing box. The handle is arranged to be secured by a padlock. A second padlock is provided to control the inlet pipe.

The Pump

The storage tanks are made of 14-gage galvanized steel in sizes ranging from 70 to 290 gal. and are normally buried 24 in. below the ground level with the inlet pipe and pump placed directly above the tank. However, with additional piping it is possible to bury the tank outside and install the pump inside an adjacent building, the entire equipment being complete with the exception of the horizontal pipe which will be of variable length depending upon the distance from the tank to the building.



The Storage Outfit Complete, Showing Alternate Locations for the Pump

This storage outfit has been developed by the St. Louis Pump and Equipment Company, St. Louis, Mo.

A PRACTICAL DEMONSTRATION of the type of beef that Alberta produces will be made next May or June when the department of agriculture of the province will ship to England 50 or 60 head of the best animals that can be obtained.

General News Department

The Western Railroad Association will on April 25 move its office from 122 South Michigan avenue, Chicago, to the Wrigley building, 400 North Michigan avenue.

The Long Island Railroad expects to electrify its division between Valley Stream and Babylon as soon as financial conditions will permit, according to a statement made by P. H. Woodward, general passenger agent, at a meeting of the Community Association of Bayshore on April 11. The distance from Valley Stream to Babylon is 21 miles.

The Boston & Albany announces that henceforth the following stations will be closed on Sundays: Longwood Brookline Hills, Beaconsfield, Reservoir, Chestnut Hill, Eliot, Waban, Woodland, Faneuil, Wellesley Farms, Wellesley Hills, Ashland, North Grafton, Rochdale, East Brookfield, Brookfield, Warren and West Warren. Ten of these are on the main line.

"Commissioners of the Port Authority" to administer the laws and treaty under which the states of New York and New Jersey are to co-operate in the development of New York Harbor, have been appointed by the Governor of New York, as follows: Eugene H. Outerbridge, president of the New York State Chamber of Commerce; Alfred E. Smith, former governor of the state; and Lewis H. Pounds, former president of the Borough of Brooklyn.

Ninety miles in one hour and twenty minutes was the time made by a special train of two cars from Philadelphia to Jersey City last Monday afternoon over the Philadelphia & Reading and the Central of New Jersey, a speed equal to 67.5 miles an hour. This train was run for J. L. Stokes, a banker, to enable him to connect with a train for Montreal, the Pennsylvania being blocked by a derailment and the Reading having no regular train for two hours. Mr. Stokes paid for the train $427.

The Chamber of Commerce of the United States has appointed a committee of five members and five alternates to co-operate with Secretary of Commerce Hoover in working out a plan for closer relationship between business and the Department of Commerce. Members of the committee are: A. C. Bedford, chairman of the board of directors of the Standard Oil Company of New Jersey, G. E. Smith, John L. Fahey, H. L. Ferguson and P. H. Gadsen. Alternates are: Howard Elliott, chairman of the board of directors of the Northern Pacific; A. L. Humphrey, president of the Westinghouse Air Brake Company; L. B. Stillwell, consulting engineer of New York; R. G. Rhett and H. M. Victor.

The legislature of the state of Tennessee recently enacted a statute providing for the elimination of grade crossings of state highways with railroads under the direction of the State Highway Commission, which is given the power to require the elimination of such grade crossings whenever it is considered necessary. Under this law the railroads are accorded the right of appeal to the Railroad and Public Utilities Commission of the state, which is authorized to make changes in the Highway Commission's order in the interests of the railroads. The law also definitely fixes the subdivision of expenses of such grade crossing elimination equally between the railroad and the public, the share borne by the public to be taken from highway funds, although this subdivision will be modified in the case of new highways or new railroads.

Senate Orders Railroad Investigation

The Senate on April 19 adopted without debate or discussion the resolution introduced by Senator Cummins providing for a general investigation of the railroad situation by the Senate committee on interstate commerce. It is planned to begin hearings about May 2 and to hear the testimony of railroad executives first.

A Correction

In the tables of Revenues and Expenses of Railways, which appeared in the *Railway Age* of April 15, page 948, the operating revenues of the Chicago, Burlington & Quincy for the two months were incorrectly given. The figure of operating revenues for the two months should have been given as $26,126,472 instead of $36,126,472 as it was given and the operating ratio for the two months as 81.56 per cent instead of 58.98 per cent as was shown.

Pennsylvania Service Record for March

Of the passenger trains operated on the Pennsylvania system in the month of March, 94.1 per cent arrived at their destination on time and 96.9 per cent made schedule time, an improvement over March, 1920, of 16.7 per cent in the number of trains arriving on time and 9.1 per cent for trains making schedule time. Passenger train performance has improved for five consecutive months. On April 1 there were 92,738 idle freight cars stored in good order on the Pennsylvania System. At the same time 85.8 per cent of the locomotives owned were available for service, an increase of 7.5 per cent in available power over April 1, 1920.

The Two Essentials

The completion of a record of three-quarters of a century of the life of the Pennsylvania Railroad, which was organized on April 13, 1846, was noticed briefly in our last issue. The date was made the occasion by President Samuel Rea of a brief address to employees and the public, sketching the history and the present greatness of the corporation and "rededicating the property to the public service and to the maintenance of sound policies and practices."

The way out of the present crisis can be found, says Mr. Rea, by

"1. The realization of an understanding between railroad corporations and their employees as a result of which every officer and employee will have reasonable compensation depending on traffic and business and financial conditions, and will give to the public and to his company loyal service and the utmost effort of which he is capable; and

"2. The development of such relations between the railroads and the public that adequate revenues may be maintained with which to provide satisfactory transportation service, to supply adequate facilities in the future for the needs of a growing country, to pay fair wages, and to give the investors who furnished the money a fair return, with full confidence in those whom they employ to manage and operate the property they have provided for public use."

International Chamber of Commerce

The International Chamber of Commerce will hold its first annual meeting in London, England, from June 27 to July 2, 1921. The keynote of the meeting will be "The Restoration of the World's Commerce." There will be general sessions and group meetings for the discussion of economic problems in the fields of finance, ocean and land transportation, communications, production, distribution and the restoration of devastated areas. Subcommittees are to be appointed to consider topics of secondary importance under the main headings. The countries which will participate in the first meeting will be asked to name representatives for the various committees. The American Section of the International Chamber has asked the following men to serve on the American Land Transportation Committee: W. W. Atter-

bury, vice-president, Pennsylvania; Samuel O. Dunn, editor, *Railway Age;* S. M. Felton, president, Chicago Great Western; Carl R. Gray, president, Union Pacific; Colin M. Ingersoll, New York City; Col. J. A. McCrea, vice-president, Pennsylvania, Pittsburgh; Col. F. A. Moliter, consulting engineer, New York City; T. C. Powell, vice-president, Erie; John F. Stevens, Chase National Bank, New York City; John F. Wallace, consulting engineer, New York City, and Col. W. J. Wilgus, consulting engineer, New York City.

Executives Favor Senate Inquiry

A meeting of the steering committee of the Association of Railway Executives was held in New York on April 15. The purpose of the meeting was to consider the presentation of the railroad situation to be made before the Senate inquiry if the pending resolution by Senator Cummins is adopted.

"Although in some quarters it has been questioned whether such an inquiry is desirable or necessary," said Thomas DeWitt Cuyler, chairman of the Association, "the executives present expressed themselves unanimously as favoring the inquiry proposed by Senator Cummins. It was the unanimous opinion of the executives present that, in view of the very great importance of having the full support of an enlightened public opinion in meeting the present difficulties confronting the railroads, the fullest inquiry into the situation as proposed by Senator Cummins would be most helpful in the present situation."

Railroad Earnings for February

The Interstate Commerce Commission's monthly summary of railway revenues and expenses for February and for two months is as follows:

		February		Two months	
		1921	1920	1921	1920
1	Average number of miles operated....	235,562.78	234,514.93	235,558.83	234,533.67
	Revenues:				
2	Freight	$283,968,205	$299,212,509	$608,832,767	$610,778,123
3	Passenger	88,492,583	82,571,063	193,791,264	174,445,209
4	Mail	7,915,776	9,058,642	16,141,505	69,587,369
5	Express	4,459,069	11,671,553	11,902,170	25,570,730
6	All other transportation	11,698,162	10,741,832	25,165,015	21,688,336
7	Incidental	8,781,104	10,856,133	19,152,013	22,394,429
8	Joint facility—Cr.	608,272	668,552	1,314,345	1,382,521
9	Joint facility—Dr.	138,319	188,988	323,814	416,218
10	Railway operating revenues.	405,784,852	424,591,296	875,975,265	925,430,499
	Expenses:				
11	Maintenance of way and structures	53,550,642	64,406,909	114,854,780	122,298,054
12	Maintenance of equipment	108,600,390	118,791,959	232,973,099	236,547,894
13	Traffic	7,041,698	5,014,511	14,410,534	9,959,452
14	Transportation ...	198,602,307	211,658,475	429,980,042	430,571,825
15	Miscellaneous operations	4,001,660	4,366,548	8,498,216	8,728,433
16	General	14,060,750	12,575,922	29,347,497	25,468,493
17	Transportation for investment—Cr..	377,840	355,956	954,377	692,501
18	Railway operating expenses..	385,479,607	416,458,368	829,109,791	832,881,650
19	Net revenue from railway operations	20,305,245	8,132,928	46,865,474	92,548,849
20	Railway tax accruals	21,983,797	20,709,114	44,810,687	41,094,512
21	Uncollectible railway revenues	80,607	101,064	163,222	218,690
22	Railway operating income	1,759,159	12,677,250	1,891,565	51,235,647
23	Equipment rents—Dr. balance.....	3,591,113	2,598,059	6,819,498	5,028,024
24	Joint facility rent—Dr. balance.....	2,028,035	1,576,492	3,286,609	3,397,474
25	Net of items 22, 23, and 24.....	7,378,307	16,851,801	8,214,542	42,810,149
26	Ratio of expenses to revenues..per cent	95.00	98.08	94.65	90.00

Railroad Administration to Ask Additional Appropriation

The Railroad Administration is planning to ask Congress at an early date for an additional appropriation which will be needed to enable it to liquidate its affairs. Chairman Good of the House committee on appropriations stated in the House on April 19 that he had been advised by Director General Davis that the amount required would be approximately $400,000,000, but it was stated at the Railroad Administration that the exact amount has not yet been determined. The Railroad Administration has already received in appropriations $1,780,000,000, including $500,000,000 appropriated by the federal control law, a deficiency appropriation of $750,000,000 in 1919, $200,000,000 appropriated by the transportation act, and an additional amount by a later appropriation bill. At the time of the return of the railroads Director General Hines estimated the additional requirement at that time at $436,000,000 in addition to the $1,450,000,000 which had then been appropriated and a later appropriation was made to cover this amount subject to certain adjustments made by the transfer of Liberty bonds to the War Finance Corporation, etc. Mr. Hines made no estimate for payments to the railroads on account of undermaintenance, contending that the government would not have to pay any large sums on this account. Comparatively few of the claims of the railroads have yet been adjusted and although many of the railroads are making larger claims than were expected, it is not yet known what proportion of them will be allowed.

Why Should Employees' Families Ride Free?

The stockholders of the Boston & Maine, at the annual meeting of the company in Boston last week voted, viva voce, unanimously, that free passes should not be issued except to employees traveling on the business of the road. As no announcement has come from the president concerning the matter it would appear that the action of the meeting has not as yet been confirmed by a stock vote. This vote evidently is a sequel to the report of the New Hampshire Public Service Commission, on February 16, in which the Boston & Maine was granted leave to close certain small stations in that state. In justification of its approval of that measure of economy the Commission issued a long report, rehearsing in forceful language the restrictive acts of the federal government which have necessitated the drastic curtailments of expenses that all railroads are now compelled to make; and then, in closing, declared that the "first economy" on the Boston & Maine ought to be the discontinuance of free service. Continuing, the report says:

"We refer to the pernicious practice, unjust and indefensible, of issuing free passes to officers and employees and their families; to surgeons, physicians and attorneys-at-law when not traveling on railroad business. Is it fair to furnish a private car, with servants, free of expense to officers of the railroad to take pleasure trips about the country? We are not saying that this privilege is often made use of, but the point is that the privilege should not exist. The words "free service" are outlawed in the vocabulary of railroad and public utility regulations. Justice requires that a railroad or public utility should serve all of the public alike. If part of the public does not pay for the service it receives, then the cost of that service must be taken care of by those who do pay. To the employee with a family of five, the free transportation privilege is worth a considerable sum, while to one with no family it is of no value; yet both may be doing the same kind of work and receive the same pay per day. . . . A better arrangement would be to have the one traveling on railroad business pay his fare and be reimbursed by the railroad upon proper bill being presented. In its present situation the Boston & Maine cannot afford to turn its back on additional income, however slight."

A New Representative of "The Public"

Senator La Follette, in a statement to the press, announces the beginning of active work with the opening of the Sixty-Seventh Congress of "The People's Legislative Service," which was organized at a conference at Washington on December 17, 1920. The need for such an organization, he said, "arises out of the fact that while special interests of all kinds are represented in Washington and bring their influence to bear upon legislation, the interest of the general public is not represented." The People's Legislative Service is to "help meet this need by furnishing the facts on which intelligent legislation must be based." It is to be distinguished from lobbying organizations by the Senator's statement that "It is not a lobby. It is a fact service." With the statement is given a list of 77 members of the National Council of the People's Legislative Service, which includes, in addition to a number of so-called progressive congressmen and others, the heads of most of the railroad labor organizations affiliated with the American Federation of Labor and the Plumb Plan League; Edward Keating, business manager of the league;

Frederic C. Howe, the head of one of its bureaus, former congressman John M. Baer, cartoonist of the league's paper Labor; W. J. Lauck, Frank P. Walsh and Donald R. Richberg, one of Mr. Plumb's legal associates, and Col. S. W. Brookhart. The executive committee consists of Senator La Follette, William H. Johnston, W. G. Lee, Warren S. Stone, George Huddleston, congressman from Alabama, who has frequently appeared as spokesman for the Plumb plan in the House, and George P. Hampton. It is stated that the service "will direct its efforts to increasing the effectiveness of those senators and representatives who are battling for the public interest."

The People's Legislative Service gave a dinner at Washington on April 16 at which Senator La Follette spoke. He gave a list of 19 "great combinations of financial power which maintain active organizations in Washington" but in this he counted the railroads twice by including not only the Association of Railway Executives, which does have an office to keep in touch with legislation, but also the American Railway Association, which is represented in Washington only by the Car Service Division. He mentioned also the "Association of Railway Security Holders." The National Association of Owners of Railroad Securities has its headquarters in Baltimore. Senator La Follette also referred to the "adoption by Congress of a fixed percentage return" for the railroads, "which forced the Interstate Commerce Commission to increase the annual transportation bill of the nation by hundreds of millions of dollars . . . a striking example of the enormous power which can be marshalled by a single interest."

Senator La Follette also attacked the railroads at a meeting of the "People's Reconstructive League" on April 14. This is another organization in which the railroad labor leaders are active. A delegation from the meeting, which included the national legislative representatives of the four train service brotherhoods, called on congressional leaders to urge a "restoration of the railroads to unified government operation."

Railroad Bills in Congress

In the usual flood of bills which are introduced at the opening of a Congressional session, a large number pertaining to railroad matters this year are "old-timers," having been pending without action in previous sessions. The most important was the resolution providing for a general investigation of the railroad situation by a Senate committee. Most of the bills introduced were referred to committee. There is no change in the membership of the Senate committee of which Senator A. B. Cummins of Iowa is chairman. There have been several changes, however, in the House committee and Samuel E. Winslow of Massachusetts has been elected chairman to succeed John J. Esch, who was not returned to Congress but has been appointed a member of the Interstate Commerce Commission. The other members of the committee are as follows: James S. Parker, New York; Burton E. Sweet, Iowa; Walter R. Stiness, Rhode Island; John G. Cooper, Ohio; Edward E. Denison, Illinois; Everett Sanders, Indiana; Schuyler Merritt, Connecticut; J. Stanley Webster, Washington; Evan J. Jones, Pennsylvania; Carl E. Mapes, Michigan; William J. Graham, Illinois; Sherman E. Burroughs, New Hampshire; Walter H. Newton, Minnesota, and Homer Hoch, Kansas, republicans; and A. W. Barkley of Kentucky, S. Rayburn of Texas, G. Huddleston of Alabama, C. F. Lea of California, P. B. Johnson of Mississippi and H. B. Hawes of Missouri, democrats.

Among the bills relating to railroads introduced in the Senate are the following: By Senator Poindexter, to amend Section 4 of the interstate commerce act to provide a rigid long and short haul rule and to prohibit interference with commerce. This bill was passed by the Senate at the last session but received no further consideration. By Senator McKellar, a bill authorizing and directing the Interstate Commerce Commission to establish a system of mileage books to be issued to commercial travelers at reduced rates. By Senator Smoot, two bills to amend Section 10 of the Clayton act, similar to the Townsend bill reported by the Senate committee last session. By Senator Cummins, a bill to amend the safety appliance act and a bill to make it unlawful to give commissions, bribes or rewards to employees or to accept them. By Senator Harrison, a bill to establish the standard of work and duty of common carriers of freight and to establish uniform rates.

Senator Pittman of Nevada presented to the Senate a resolution of the Nevada legislature petitioning Congress to amend the transportation act to protect and preserve the powers of the several states with relation to intrastate rates, services and facilities. Senator Ashurst of Arizona presented a similar resolution by the legislature of Arizona. Senator Trammell of Florida presented a resolution directing the interstate commerce committee to investigate the high freight rates being charged on citrus fruits, vegetables and other perishable farm products, with a view to bringing about early legislation that will result in a reduction in the existing freight rates on such perishable products. Senator Jones of Washington introduced a bill exempting vessels of the United States from paying tolls when passing through the Panama Canal. This was referred to the committee on interoceanic canals. Senator Frelinghuysen re-introduced his bill for seasonal coal rates.

Bills introduced in the House of Representatives include one by Representative Tincher of Kansas to abolish the Railroad Labor Board and transfer its functions to the Interstate Commerce Commission. Representative Logan introduced a bill to provide a penalty of $50 for failure of a common carrier to adjust and pay in 40 days claims for freight overcharge or for loss or damage. Representative Madden re-introduced his bill to abolish the use of "Jim Crow" railroad cars for negroes by prohibiting discrimination on account of race, color or previous condition of servitude. Representative Anderson introduced a bill to require carriers to supply necessary warehouse facilities. Representative Black re-introduced his joint resolution directing the Railroad Labor Board to make further investigation of the wages of railroad employees and such modifications in its decisions as are justified in the public interest and directing the Interstate Commerce Commission at the same time to review its rate decision and make such reductions in rates as it may find to be just and reasonable. Representative Wright introduced a bill to prescribe rates, fares and charges of railroads for a period of one year. Representative Blanton introduced a bill to prohibit strikes on railroads.

Senator Lenroot has re-introduced in the Senate his measure of last session to provide for the creation and organization of the National Railway Corporation and for the acquisition, control and operation of railroads and water carriers by it under what is known as the Amster plan.

Senator Smoot has introduced a bill to amend Section 10 of the Clayton act, so that none of its provision shall apply to any railroad which is wholly owned by a person or corporation whose plant or factories such railroad is principally engaged in serving, nor to any director, agent or officer of any such road.

Senator McKellar: to authorize the Interstate Commerce Commission to establish mileage books for commercial travelers at 20 per cent less than regular passenger fares.

Senator Watson: to require railroads to issue interchangeable, non-transferable 5,000 mile tickets for 2½ cents a mile. The bill, however, provides for a modification of the rate from time to time by the Interstate Commerce Commission in accordance with changes in the average rate level.

Representative Mason: authorizing carriers to make special rates for school children and necessary attendants between any states in the United States and Washington, D. C., to enable them to visit the Capital for educational purposes.

Senator Cummins: to amend the valuation act by striking out the requirement that the commission report separately the original and present cost of condemnation and damages or of purchase of land.

Senator Fletcher: to amend Section 206 of the interstate commerce act so that freight claims based on alleged unreasonable rates during federal control may be filed with the commission within two years from the termination of federal control.

Representative Wright: forbidding railroads, for one year beginning 30 days after its passage, to charge rates higher than those in effect on February 27, 1920; and during the prescribed year the Interstate Commerce Commission "shall fix new rates under the terms of the transportation act, taking into consideration the business and financial conditions of the section or territory to be affected by the rates."

Traffic News

The New York State Barge Canal is to be opened on May 1. The Transmarine Corporation of Newark, N. J., expects to use 20 barges in freight service on the canal. The United States War Department, which has a fleet of 70 barges, has, as yet, taken no public action looking to the beginning of service.

A reduction in freight rates on Canadian roads approximating $4.30 a thousand feet on lumber and shingles from British Columbia points to Toronto will become effective on April 21. The reduction is authorized by the Canadian Railway Commission to permit British Columbia lumbermen to compete with lumbermen of the Southern states.

Anthracite Shipments in March

The shipments of anthracite in March as reported to the Anthracite Bureau of Information, amounted to 5,737,771 gross tons as compared with 5,966,101 tons during the preceding month of February, and 6,077,821 tons in March, 1920. The decrease is attributed to the mild weather and to consumers' holding off on account of uncertainty as to April prices. The total shipments for the coal year ending March 31, amounted to 69,366,731 tons as compared with 69,815,034 for the year ended March 31, 1920, a decrease of 448,303 tons, which, considering the mild weather of the past winter, is remarkably small.

Shipments by originating carriers were:

	March, 1921	February, 1921
P. & R.	1,018,858	1,170,753
L. V.	1,022,714	1,063,508
C. of N. J.	540,556	515,551
D. L. & W.	1,020,381	920,788
D. & H.	837,644	813,191
Penna.	333,687	436,350
Erie	561,013	633,706
N. Y. O. & W.	144,930	153,017
L. & N. E.	257,988	269,237
Total	5,737,771	5,966,101

Coal Production

The coal year came to an end on April 1 with production of soft coal still declining, according to the weekly bulletin of the Geological Survey. The output for the week ending April 2 was estimated at 5,797,000 net tons, a decrease of 7 per cent as compared with the week preceding. How much of the decline in output was due to the occurrence of the Mitchell Day holiday on April 1 and of Easter Monday, and how much to a further slackening in demand, is said to be uncertain. For the week as a whole, the two days seem to have accounted for about 1½ normal working days. The estimated production for the month of February, according to the bulletin, was 30,851,000 tons as compared with 40,270,000 tons in January and 52,123,000 in December. The total bituminous production for the coal year ended March 31 is estimated at 522,000,000 net tons as compared with 486,899,000 tons in 1919-1920, 552,041,000 in 1918-1919, 548,715,000 in 1917-1918, and 504,102,000 in 1916-1917.

The first week of the new coal year, that ending April 9, brought no relief from the depression which has affected the bituminous industry in recent months, says the weekly bulletin of the Geological Survey. The total output of soft coal is estimated at 6,089,000 net tons. Although this was an increase over the output of the holiday week preceding, the rate per working day declined slightly.

The National Coal Association has issued a review of the soft coal situation urging efforts to obtain an even distribution of coal output the year round. The statement points out that there should be an average weekly production of approximately 10,500,000 to 10,750,000 tons and that if production falls below this line of safety for any material period there will be danger of a pinch later. "It is all a matter of transportation," the statement says. "If the mines have the cars as they are needed, the public will have its coal. How to keep the bituminous coal moving so that the railroads do not become clogged . . . . is a problem that contronts the industry no less than the railroads."

Commission and Court News

Interstate Commerce Commission

The Commission has further suspended until June 4 the operation of the proposed increased charges from $2.50 to $7.00 per car for switching cars between industries located on the St. Louis-San Francisco and interchange tracks of connecting lines, published in a St. Louis-San Francisco company's tariff, the operation of which was suspended until May 5.

The commission has suspended from April 20 until August 18 the operation of certain schedules published by the Missouri Pacific which propose to eliminate the existing transit privileges on grain and grain products at St. Louis, Kansas City, Mo., Atchison, Kan., and other points, when destined to Texas Gulf Ports for export on shipments originating at points on the Missouri Pacific in Missouri, Kansas, Nebraska and Colorado. Colorado.

The Commission has further suspended until May 17 certain class and commodity rates between points in defined territories in eastern and southern group to points in southwestern territory. The suspended schedules propose to apply an increase of 35 per cent over the rates in effect on August 25, 1920, to and from the basing points, used in the construction of through rates in lieu of these interterritorial percentage increase of 33 1/3 per cent established under approval of the Commission in Case No. 74, Ex Parte, the operation of which was suspended until April 17, 23 and 30, 1921, by orders previously issued.

The Commission, deciding the case instituted by the National Industrial Traffic League, holds that the commission is without jurisdiction to prescribe uniformity in the liability clauses of contracts for the construction, maintenance and use of private sidetracks. The liability clauses contained in the contracts made by most of the railroads were attacked by the league as unjust, unreasonable and unduly prejudicial, but after negotiations between the League and the railroads a set of liability clauses was jointly submitted to the commission with a request that it recommend their general adoption.

Personnel of Commissions

President Harding on April 14 sent to the Senate the nomination of John J. Esch for appointment as a member of the Interstate Commerce Commission. Mr. Esch has been serving under a recess appointment.

New Commissioners in New York

The new public service commissioners of the State of New York, provided for in the law revising the commissions, which was noticed in the *Railway Age* of April 15, page 928, were announced by the governor on April 16. The chairman is William A. Prendergast of New York City, former comptroller of the city. His term expires on February 1, 1931. The other commissioners are William R. Pooley of Buffalo, for a term expiring February 1, 1929; Charles Van Voorhis of Rochester, for a term expiring February 1, 1927; Oliver C. Semple of New York, to February 1, 1925, and Charles G. Blakeslee of Binghamton until February 1, 1923.

Mr. Prendergast took part in the negotiations between New York City and the railroads when the subway contracts of 1913 were made. He served twice as city comptroller. Mr. Van Voorhis is a leading Republican in Monroe County. Mr. Semple took part in an investigation of the New York City transit lines. He has counseled Governor Miller in public utility matters. Mr. Blakeslee is an engineer as well as a lawyer, and is corporation counsel of Binghamton. He went to France as a lieutenant and came back as a major. He is state commander of the American Legion.

For the "Transit Commission," to exercise authority over local transportation within New York City, the governor named as chairman George McAneny, former president of the board of

aldermen; Leroy T. Harkness, who has had much experience as a legal officer of former New York City commissions, and Major-General John F. O'Ryan. General O'Ryan, a lawyer, commanded the 27th division of the American Expeditionary Forces in France, and is now the head of the New York National Guard.

John J. Esch assumed his duties as a member of the Interstate Commerce Commission under a recess appointment pending his confirmation by the Senate.

Mr. Esch's appointment was confirmed by the Senate on April 18 by a vote of 52 to 3. Those who opposed him were Senators La Follette of Wisconsin, Trammell of Florida, and Watson of Georgia. Senator La Follette submitted a long minority report dissenting from the action of the committee on interstate commerce in recommending Mr. Esch's confirmation, in which he said that an examination of the records of Congress during the 17 years of Mr. Esch's services on the committee on interstate and foreign commerce "will show that he has been in substantial accord with the governmental policies in which the carriers of the country have been brought to their present plight and that his attitude revealed in his speeches and votes has been one of consistent friendliness to the railroads."

Mr. La Follette says that for many years Mr. Esch joined with his colleagues on the committee in ignoring recommendations of the commission; that he did not become an advocate of railroad valuation until the fight had been practically won; that he supported the federal control bill which, the Senator says, gave the railroads an exorbitant rental, that he voted for what Senator La Follette refers to as the 6-per-cent guaranty in the Transportation Act, and that he supported the bills extending the effective date of Section 10 of the Clayton law and to provide for the payment of the six months' guaranty. The Esch-Cummins law as it exists today was the work of Mr. Esch and the results of its application may be attributed largely to his authorship. The appointment of Mr. Esch to the Interstate Commerce Commission at this time, he said, will be an act of great significance to the people of the country who are crying for relief from conditions which have been aggravated by the operation of the Esch-Cummins law. It is recognized that Mr. Esch is more responsible than any other one man for the present Transportation Act.

John P. Kelly

John P. Kelly, for the past two years inspector of safety appliances in the Bureau of Safety, Interstate Commerce Commission, has been appointed senior railway mechanical engineer for that Bureau, with headquarters at Washington, D. C. Mr. Kelly was born in Great Barrington, Mass., on March 16, 1864, and received his early education in the public schools of that town; his engineering training was obtained in the engineering departments of the companies by whom he was employed. His first railroad service was on the Housatonic Railroad, now a part of the New Haven System, as water boy on passenger trains, in 1880. He was locomotive fireman in 1884, and locomotive engineman in 1887. He served as locomotive engineman on the New Haven and later on the New York Central; and in 1898 was appointed air brake instructor on the Central. In 1899 he was road foreman of engines on the Chicago & Alton; in 1901 he went to the New York Air Brake Company, where later he was appointed assistant mechanical engineer. In 1905 he resigned and went to the Westinghouse Air Brake Company but in 1910 resigned and devoted his time to the business of consulting air brake engineer, and to writing for the technical press. In 1912 he entered the employ of the New York Central Lines as consulting air brake engineer. Later he went into government employ as above stated.

J. P. Kelly

Foreign Railway News

Chinese Government to Order Locomotives

The Chinese Government is asking for bids on 41 locomotives to be supplied to the government railways, according to advices from Commercial Attache Julean Arnold at Peking. All bids received will be opened at Peking on June 15. The purchase of these locomotives will be financed by a group of Chinese bankers.

Retirement of England's Minister of Transport

LONDON.

Sir Eric Geddes, Minister of Transport, is to retire from this position in August next, when the State control of the railways ends. Sir Eric wished to resign from the Government in 1918, but was persuaded to remain for a period of two years in order to organize the whole system of transportation on a workable basis. Sir Eric Geddes stated that he will not renew his connection with any railway company.

Roumanian Committee to Study Railway Problems

LONDON.

It is announced that the Roumanian Ministry of Communications has appointed a special committee to study the problem of the railway organization and the possibility of electrification of part of the Roumanian railways. The committee consists of technical and financial experts and is to visit the United States, France and Italy, to study what facilities and credit institutions are offered in these countries for co-operating with Roumania for the electrification of the State railways.

Locomotive Building in France

LONDON.

The French output of locomotives at the end of the year 1922 will be 1,300 per annum. As its normal home consumption will not be more than 600, France will, states the Times (London) Commercial Supplement, become an important rival in South America and other foreign countries. At present, however, the workshops are busy refitting the home railways, not yet having executed the order placed just after the armistice of 1,100 locomotives.

Proposed Purchase of British Railroad in the Dominican Republic

It is reported that the Dominican government has been considering the purchase from the British owners of the Samana & Santiago, which connects the various towns in the interior with the port of Sanchez. The road is a 4-ft. gage, and has about 100 miles of track. It is understood that the price for which it was offered to the government was somewhat under $2,500,000. Further information may be obtained from the Bureau of Foreign and Domestic Commerce or any of the district and co-operative offices upon reference to file No. 24151.

Inspection of the Orient in Mexico

Representatives of British and American interests which own the Kansas City, Mexico & Orient are making a trip of inspection of that property with the view of determining the advisability of constructing in the near future the unfinished gaps in the line in Texas and Mexico, as well as building the proposed branch line that is to run from San Angelo to Del Rio, according to reports from San Angelo, Tex. At Del Rio this line would connect with the transcontinental road of the Southern Pacific and with the branch line that the National Railways of Mexico is constructing from Allende, Mexico, to Villa Acuna, situated just across the Rio Grande from Del Rio. The inspection party consists of Frederick Hurdle and W. S. Poole of London, Eng., and Charles H. Jones of New York. Mr. Hurdle stated while in San Angelo that if a favorable report is made on the project all of the gaps will be built at the earliest possible time, and that the branch line between San Angelo and Del Rio would be the first work done.

American Specifications for France

The United States Department of Commerce is now translating into French, for publication in a French-English edition, 62 specifications of the American Society for Testing Materials particularly applicable to export trade. These specifications include those for rails and splice bars, structural and reinforcing steels, steel forgings and castings, steel wheels and tires, steel and iron tubes and pipe, boiler steels, wrought-iron products, pig iron, cast-iron pipe, malleable and gray-iron castings, copper wire, copper bars, spelter, bronze, cement, linseed oil and turpentine. These same specifications were translated into Spanish two years ago, and have since been distributed among consular offices and elsewhere in South America.

Exports of Car Wheels and Axles in February

The exports of car wheels and axles in February were valued at $306,076. Shipments to the value of $72,518 went to Cuba and $56,523 to Chile. The detailed figures by countries, as compiled by the Bureau of Foreign and Domestic Commerce follow:

Countries	Dollars	Countries	Dollars
France	95	Brazil	5,256
Netherlands	1,107	Chile	56,523
Spain	12,950	Colombia	2,000
Switzerland	250	Ecuador	188
England	263	Paraguay	1,800
Canada	11,455	Peru	3,153
Costa Rica	1,835	Uruguay	8,500
Guatemala	750	China	92
Honduras	736	Kwangtung, leased territory	3,840
Panama	85	British India	3,032
Mexico	47,471	Dutch East Indies	41,156
Jamaica	360	Japan	11,688
Trinidad and Tobago	183	New Zealand	458
Cuba	72,518	Philippine Islands	6,580
Dutch West Indies	313	British South Africa	291
Dominican Republic	2,973	Portuguese Africa	1,470
Argentina	6,725	Total	306,076

January Exports of Car Wheels and Axles

January's totals of exports of car wheels and axles show a decided improvement over the figures for December. The total exports for the month were valued at $802,351, and Brazil, with $230,515 of this equipment, was the country which led all the others in the value of the shipments of this material. The detailed figures by countries, as compiled by the Bureau of Foreign and Domestic Commerce, are as follows:

Countries:	Dollars
Belgium	21,421
France	80
Spain	9,600
Canada	70,817
Costa Rica	2,829
Guatemala	6,308
Honduras	4,012
Nicaragua	1,610
Panama	4,888
Mexico	56,126
Jamaica	3,554
Trinidad and Tobago	5,714
Cuba	30,436
French West Indies	290
Dominican Republic	1,375
Argentina	22,550
Brazil	230,515
Chile	53,500
Colombia	4,547
Ecuador	1,620
British Guiana	4,525
Paraguay	2,430
Peru	28,458
China	81,466
British India	6,672
Dutch East Indies	71,800
Japan	36,911
Australia	979
New Zealand	1,380
Philippine Islands	31,738
Morocco	4,200
Total	802,351

Roumanian Plan for Financing Locomotive Purchases

LONDON.

A decree issued on January 26, 1921, authorizes the Roumanian Minister of Communications to make contracts along the lines indicated in a pro forma agreement. These agreements are to be made between national or local authorities and private firms who either pay for locomotives acquired by the Railroad Administration, or themselves purchase locomotives of types to be approved by the Railroad Administration. The agreements will give to the firms advancing the necessary sums, or purchasing directly such locomotives, the right to run the locomotives for the purpose of transporting their own goods or goods purchased by them in the course of business. The necessary rolling stock is to be placed at the disposal of the firms supplying the locomotives and the trains will be run on a fast freight schedule, but contracting firms are to debit themselves with the ordinary transportation charges and are entitled to keep the locomotives at their own disposal until the sum of these ordinary transportation charges covers the cost of the purchase of the locomotives. Although the pro forma agreement does not clearly state it, it is understood that the firms advancing the necessary money or purchasing the locomotives will have the right to charge interest on the sums advanced.

Car Exports in February

The totals for the exports of passenger cars in February fell off sharply from the January figures and a measurable decline in freight car exports is also noted. The passenger cars shipped totaled 5, valued at $20,725, and the freight cars 1,383, valued at $2,314,499. Parts of cars exported during the month were valued at $2,230,176, a marked increase over January. Cuba was the destination of 1,005 of the freight cars and Argentina of car parts to the value of $1,100,922. The detailed figures by countries, as compiled by the Bureau of Foreign and Domestic Commerce, follow:

	Steam				
	Passenger		Freight and other		Parts of cars.
Countries	Number	Dollars	Number	Dollars	Dollars
Germany	..	.....	.....	.....	622
Norway	..	.....	.....	.....	65
Spain	..	.....	1	9,950	.....
England	..	.....	.....	.....	5,811
Scotland	..	.....	.....	.....	13,860
Bermuda	..	.....	.....	.....	194
Canada	3	3,400	25	38,367	70,151
Costa Rica	..	.....	.....	.....	64
Guatemala	..	.....	.....	.....	.....
Honduras	..	.....	.....	.....	.....
Nicaragua	..	.....	.....	.....	206
Panama	..	.....	.....	.....	2,326
Salvador	..	.....	58	81,670	.....
Mexico	..	.....	185	233,887	106,821
Newfoundland and Labrador	..	.....	.....	.....	1,506
Jamaica	..	.....	.....	.....	5,915
Trinidad and Tobago	..	.....	.....	.....	40,204
Cuba	..	.....	1,005	1,644,414	425,347
Dominican Republic	..	.....	3	2,250	6,402
Argentina	..	.....	.....	.....	1,100,922
Bolivia	..	.....	1	1,919	.....
Brazil	..	.....	.....	.....	76,500
Chile	..	.....	.....	.....	30,168
Colombia	2	17,325	38	86,260	27,472
Peru	..	.....	7	14,770	17,790
Uruguay	..	.....	.....	.....	11,500
Venezuela	..	.....	.....	.....	4,784
China	..	.....	4	29,108	8,145
Kwangtung, leased territory	..	.....	.....	.....	12,233
Chosen	..	.....	.....	.....	7,881
British India	..	.....	.....	.....	16,361
Other British East Indies	..	.....	.....	.....	816
Dutch East Indies	..	.....	.....	.....	5,850
Hongkong	..	.....	.....	.....	.....
Japan	..	.....	.....	.....	110,301
Siam	..	.....	.....	.....	.....
Australia	..	.....	6	20,100	6,487
New Zealand	..	.....	.....	.....	192
Philippine Islands	..	.....	30	95,490	35,576
British South Africa	..	.....	.....	.....	77,582
Morocco	..	.....	.....	.....	.....
Portuguese Africa	..	.....	20	56,314	120
Total	5	20,725	1,383	2,314,499	2,230,176

Railway Wages in England

LONDON.

The London Times reports that the National Union of Railwaymen has decided to impose an additional levy of 12 cents per week upon all its members. It is reported that this additional revenue will be used to increase the unemployment benefit and strengthen the resistance of out-of-work members to accepting wages below the present rates.

It is evident that the railway unions are endeavoring to strengthen their financial position in an attempt to meet any situation that may arise, either in regard to wages or the final solution of the railway problem which is soon to be discussed in Parliament. According to the present railway agreements, which the railways have thus far shown no disposition to question, the wages of the railwaymen cannot be reduced below an average of about 125 per cent above their pre-war rates. It will be remembered that the English railwaymen have agreed to a sliding scale of wages depending upon the cost of living. The present figures in this respect indicate that there will be an average reduction of

about a dollar a week in wages on account of decreased cost of living, which the railwaymen have stated they are ready to accept in accordance with their agreement.

At the present time the annual wage bill of the railways has increased from $235,000,000 in 1913 to $865,000,000 (at par). The 8-hour day is responsible for a large amount of this increase. In some cases, as that of small stations open for, say, 10 hours, two men, whose hours overlap, are often required to perform one man's work. An instance was mentioned in Scotland where before the war 15 men were engaged for certain work at a total cost of $3,410. At the present time 30 men are required for the same work at a cost of $37,075.

The Railway Wages Board of Great Britain has, in accordance with the latest Board of Trade figures on the cost of living, and further in accordance with the wage agreement between the government and the unions, reduced the weekly wages of the railwaymen by four shillings (about $1.00 at par) per week. Since the beginning of April, 1920, wages have been increased eight shillings a week (about $2.00) in accordance with this scale, and the present reduction, which takes effect on April 1, is the first to have been made under the sliding scale. It is estimated that this reduction of four shillings a week will reduce the railways' wage bill by approximately $29,000,000. The railway clerical staffs have also been affected by a fall in the cost of living. They will suffer a reduction of about $100 a year in salaries.

Track Material Exports in February

The exports of track materials in February showed some decline over January's totals, but the falling off is not serious except in the case of track spikes, of which the February shipments were but 2,742,959 lb., valued at $144,675. Rails weighing 59,300 tons, valued at $3,603,938, and miscellaneous materials valued at $1,148,612 are the other totals. The detailed figures as compiled by the Bureau of Foreign and Domestic Commerce follow:

	Railroad spikes		Rails of steel		Switches, frogs, splice
Countries	Pounds	Dollars	Tons	Dollars	bars, etc.
Belgium	.....	.....	470	$31,178	$9,233
Finland	7,700	$62	24	1,626	.....
France	.....	.....	308	13,886	.....
Italy	.....	.....	40	2,400	.....
Netherlands	.....	.....	945	68,408	4,271
Norway	.....	.....	.....	.....	200
Portugal	27,000	1,401	48	4,494	9,096
Roumania	.....	.....	.....	.....	2
Spain	.....	.....	911	60,999	3,348
Sweden	.....	.....	1,842	134,044	6,422
England	.....	.....	3	180	1,917
Scotland	.....	.....	3,555	239,520	7,508
Ireland	.....	.....	66	4,199	687
Canada	104,545	4,761	316	15,253	28,255
Costa Rica	1,000	114	.....	.....	640
Guatemala	.....	.....	.....	.....	15,935
Honduras	194,944	6,020	2,352	145,840	16,029
Nicaragua	21,800	1,034	15	997	120
Panama	33,200	1,639	20	1,180	4,531
Salvador	1,000	70	.....	.....	161
Mexico	467,334	24,467	938	22,389	14,015
Trinidad and Tobago	15,800	861	588	40,533	6,687
Other Brit. West Indies	.....	.....	5	349	.....
Cuba	517,538	22,938	4,120	262,298	111,363
Virgin Islands of U. S.	.....	.....	.....	.....	1,275
French West Indies	.....	.....	.....	.....	575
Haiti	.....	.....	23	2,000	1,941
Dominican Republic	74,300	3,023	159	9,283	7,725
Argentina	76,200	5,005	823	52,945	53,009
Bolivia	.....	.....	31	1,750	3,059
Brazil	313,929	15,677	2,062	128,305	79,562
Chile	.....	.....	81	5,107	14,771
Colombia	11,000	547	601	40,019	24,204
Ecuador	.....	.....	12	1,060	175
British Guiana	.....	.....	.....	.....	190
Peru	53,380	2,466	686	48,348	30,262
Uruguay	.....	.....	472	32,210	10,354
Venezuela	300	29	.....	.....	5,734
China	186,700	13,002	9,846	598,616	100,646
Kwantung, leased territory	270,000	11,401	.....	.....	5,891
Chosen	4,000	274	73	5,078	775
British India	96,116	3,823	1,581	105,564	13,815
Straits Settlements	.....	.....	138	10,821	571
Other Brit. East Indies	.....	.....	35	3,500	.....
Dutch East Indies	191,271	22,058	11,048	698,012	83,992
Japan	8,960	1,022	135	10,030	335,167
Siam	.....	.....	2,953	200,879	.....
Australia	.....	.....	1,291	97,797	9,126
New Zealand	607	74	399	27,379	3,124
Philippine Islands	59,525	2,599	2,329	147,696	42,634
British South Africa	.....	.....	487	34,958	4,845
British East Africa	.....	.....	.....	.....	2,015
French Africa	.....	.....	4,807	108,676	.....
Portuguese Africa	4,810	308	2,502	165,204	72,755
Egypt	.....	.....	250	18,928	.....
Total	2,742,959	$144,675	59,390	$3,603,938	$1,148,612

Equipment and Supplies

Locomotives

The Louisville & Jeffersonville Bridge & Railroad Company is inquiring for some 0-6-0 type locomotives.

Mitsui & Company, New York, are inquiring for 6 English type, 4 wheel, coupled, passenger locomotives, for the Shanghai-Hanchow Railway, China.

The Japanese Government has ordered from the Baldwin Locomotive Works for the Imperial Household 3 saddle tank locomotives with a total weight in working order of 16,000 lb.

Freight Cars

The Beacon Oil Company, Boston, Mass., has ordered 20 tank cars, of 10,000 gal. capacity, from the General American Tank Car Corporation.

Mitsui & Company, New York, are inquiring for 40 all-steel air dump cars, for the South Manchurian Railway, and also for 40 all-steel box cars of 40-ton capacity, for the Shanghai-Hanchow Railway, China.

Mitsui & Co., 65 Broadway, New York, representing a Chinese banking group and on behalf of the Chinese Ministry of Communications, are inquiring for 100 all-steel 40-ton gondola cars for the Pekin-Kalgan; also for 100 all-steel 40-ton box cars for the Tientsin-Pukow.

Passenger Cars

The Tientsen-Pukow is inquiring through the car builders for from 30 to 50 passenger cars.

Betanzos Ferrol Railway.—Bids will be opened on April 25, at Madrid, Spain, for 34 passenger and 4 baggage cars.

The Sao Paulo-Rio Grande (Brazil) is inquiring through the car builders for some passenger train equipment, to include sleeping cars.

Mitsui & Co., New York, are inquiring for 6 first-class and 6 second-class sleeping cars, 6 dining cars, 6 combination first and second-class, 10 third-class and 6 third-class with buffet passenger cars, for the Peking, Hankow Railway, China. This company also ordered from J. G. Brill & Company, 141 car sets of trucks, for the Osaki Municipal Railway.

Machinery and Tools

The Duluth & Iron Range, Duluth, Minn., is inquiring for a 90-in. wheel lathe, 2 16-in. engine lathes, 1 14-in. engine lathe and a 48-in. by 48-in. by 12-ft. planer. All of these machines are to be motor driven.

R. S. Stokvis & Sons, Inc., 17 Battery Place, New York, has received specifications comprising about 250 tools for machine shop equipment for a railroad project in Africa. Complete specifications will be issued shortly and tenders submitted as soon as quotations have been received from manufacturers. The list includes a double centering machine axle lathe, vertical lathe, car wheel lathe, hydraulic shrinking press, extension gap lathes, turret lathes, shapers, high speed drills, planers, slotters, horizontal milling machines, double reaming machines, shearing machines, forging machines, bulldozers, steam power hammer, double frame steam power hammers, compressed air hammers, spring leaf shaping machines, leaf bending machine, hydraulic presses, universal shearing and punching machine, double shear and punch, plate straightening machine, rotary shearing machine, hydraulic press for boiler heads, double-end grinding machine, radial drills, double-head bolt threading machine, bolt pointing machine, nut threading machine, 14 in. lathe facing lathes, vertical drilling, reaming and grooving machine, milling machine, grinding machine, vertical grinding machine, tool grinder, twist drill grinder, disk polishing and grinding machines, universal radial.

Supply Trade News

The **Roberts & Schaefer Company** will remove its office on April 23 from the McCormick building to the Wrigley building, Chicago.

Homer C. Johnstone, formerly with the Midvale Steel Company, now represents the **Gould Coupler Company,** with headquarters at New York City.

The Consolidated Steel Corporation has removed its office from 165 Broadway to the Cunard building, 25 Broadway, New York City.

The Wonham, Bates & Goode Trading Corporation has removed its office from 17 Battery Place to 251 Fourth avenue, New York City.

D. T. Groff has been elected vice-president of the **Jefferson Union Company**, Lexington, Mass., and **C. E. Cook,** who was traveling representative, has been appointed sales manager.

The Hutchins Car Roofing Company, Detroit, Mich., will remove its New York City office on May 1 from 103 Park avenue to room 910 Canadian Pacific building, 342 Madison avenue.

The Southern Hardware & Supply Company, St. Louis, Mo., has appointed **E. L. Ruby,** Eastern sales agent, 1338 Real Estate Trust building, Philadelphia, Pa., for the sale of Saunders car stopper.

Victor T. Goggin, formerly New England sales manager of Fred T. Ley & Co., Springfield, Mass., has been appointed contracting engineer with **Dwight T. Robinson & Co., Inc.,** with headquarters at New York City.

The Gold Car Heating & Lighting Company on May 1 will remove its offices from 17 Battery Place, New York City, and its warehouse to larger quarters at the Bush Terminal, 220 Thirty-sixth street, Brooklyn, N. Y.

H. G. Barbee, formerly in charge of eastern railroad sales of the **Chicago Pneumatic Tool Company,** has been appointed manager railroad sales, with headquarters in the Chicago Pneumatic building, 6 East Forty-fourth street, New York.

Dwight E. Robinson, until recently eastern railway represenative of E. I. Du Pont de Nemours & Co., on May 1 will become manager of the railway sales department of **Breinig Brothers, Inc.,** manufacturers of paints and varnishes, Hoboken, N. J.

The Keller Pneumatic Tool Company, Grand Haven, Mich., announces the removal on May 1, of its Chicago branch to larger and more up-to-date salesrooms and service station, on the main floor in the Transportation building, 624 South Dearborn street, Chicago.

The **Merchants Shipbuilding Corporation,** New York, announces that it will extend operations at its Chester, Pa., plant from the shipbuilding field into general steel construction. Power plant equipment, plate shop work and railroad equipment, to consist of the fabrication of steel for structures and for general structural work, will in future be manufactured at the plant.

Frank N. Grigg has been appointed southeastern sales manager of the **Morton Manufacturing Company,** with headquarters at 630 Louisiana avenue, Washington, D. C. Mr. Grigg will handle the sale of the entire "Acme Line" of railway appliances. **C. H. Kadie,** formerly master mechanic on the Southern Railway, is now in the sales department of this company and will assist Mr. Grigg.

John Hyland, formerly in the railway supply business at Chicago, is now located at Atlanta, Ga., representing the Edgewater Steel Company, Pittsburgh, Pa., the Joliet Railway Supply Company, Burry Railway Supply Company, De-Remer-Blatchford Company, G. S. Wood Company and the Economy Torch Company, all of Chicago. His headquarters are at 1209 Fourth National Bank building, Atlanta, Ga.

The W. R. Hickman Lumber Company has been organized in Cleveland, Ohio, with W. R. Hickman, for the past five and a half years sales manager for the Nicola Stone & Myers Company, as president. The company will specialize in railroad and industrial lumber, handling yellow pine, West Coast stock, ties and hardwood car material. The general offices of the company are at 1264 Hanna building, Cleveland, Ohio, with representatives in Hattiesburg, Miss., and Seattle, Wash.

The Texas Company, Houston, Texas, announces the following appointments in its railway sales department. On February 1, **W. H. Noble** was appointed district manager at Chicago, vice **John J. Flynn,** deceased. On March 1 an office was established at St. Louis, Mo., 1689 Arcade building, with **F. E. Sheehan,** representative in charge, and an office in Los Angeles, Cal., 1206 Merchants National Bank building, with **J. B. Flynn,** representative in charge. Effective April 1, an office was established at Oklahoma City, Okla., with **L. R. Dallam,** representative in charge.

F. B. Jewett, chief engineer of the **Western Electric Company,** has been elected a vice-president and director of the company, continuing his present duties in charge of the technical forces of the company. Dr. Jewett, who was a lieutenant-colonel in the Signal Corps during the war and was decorated with the Distinguished Service Medal, was born at Pasadena, Cal., on September 5, 1879. He was graduated from the electrical engineering course of Throop Polytechnic Institute, of Pasadena, in 1898. From that time until June, 1902, he was a graduate student at the University of Chicago. During the next two years he was instructor in physics and electrical engineering at the Massachusetts Institute of Technology. Dr. Jewett's connection with the commercial telephone business dates from September, 1904, when he became transmission engineer for the American Telephone & Telegraph Company. While acting in this capacity, the loading of eight gage circuits was perfected; phantom tables and phantom loading for open wires and cables were developed; the New York to Denver circuit and line was engineered and also the Boston to Washington underground cable. In April, 1912, Dr. Jewett became assistant chief engineer of the Western Electric Company in charge of all development and research work. He has been chief engineer since 1916. Dr. Jewett was an advisory member of the Special Submarine Board of the Navy and contributed much towards the perfection of devices for detecting hostile submarines. The perfection of wireless telephoning is one of the undertakings which was completed under his direction.

F. B. Jewett

The Air Reduction Sales Company, Inc., manufacturers of Airco oxygen, acetylene and welding and cutting apparatus, will move its executive offices on May 1, from 120 Broadway to 342 Madison avenue, New York City. The New York district office at 160 Fifth avenue, New York, after May 1 will be located at the Airco factory, 191 Pacific avenue, Jersey City, N. J. The company has secured control of the National Carbide Corporation of Virginia, with a new plant at Ivanhoe, Va., and beginning May 1, 1921, will direct the policy and control the operation and sales of the Carbide Corporation.

Railway Financial News

BELT RAILWAY OF CHICAGO.—*Annual Report.*—The annual report for the year ended December 31, 1920, shows the following income account as compared with 1919:

	1920	1919
Operating Income—		
Operating revenues	$3,940,302	.....
Operating expenses	3,763,022	$45,700
Net revenue from operations	$177,280	Dr. $45,700
Tax accruals	251,482	14,859
Railway operating income	Dr. $74,201	Dr. $60,558
Non-Operating Income—		
Joint facility rent income	$1,433,951	.....
Income from lease of road	278,101	$1,616,359
Total non-operating income	$1,815,823	$1,691,306
Gross income	$1,741,621	$1,630,748
Deductions from Gross Income—		
Rent for leased roads	$1,530,597	$1,457,662
Interest on funded debt	716	255
Total deductions from gross income	$1,568,821	$1,457,947
Net income	$172,800	$172,800

The Belt Railway did not accept the guaranty for the six months ended August 31, 1920.

The operating revenues and expenses in detail of the Belt Railway compare as follows:

	1920	1919	Increase or Decrease
OPERATING REVENUES			
Transfer switching	$3,698,588	$2,864,762	$833,826
Local switching	937,118	864,059	73,059
Total operating revenues	$4,704,324	$3,780,322	$924,002
OPERATING EXPENSES			
Maintenance of way and structures	$669,034	$357,145	$311,889
Maintenance of equipment	762,632	665,153	97,479
Traffic	10,156	4,285	5,871
Transportation	2,959,763	2,260,654	699,109
General	117,291	140,333	—23,042
Total operating expenses	$4,518,877	$3,427,570	$1,091,307

The number of cars handled by the Belt Railway in 1920, both interchange and local, was 1,045,814. In addition, there was a total of 320,462 cars interchanged between owner roads at Clearing and other yards, handled by the Belt Railway through such yards in 1920.

President H. G. Hetzler in the report refers to maintenance as follows:

> The expense for maintaining roadway and structures increased $311,889.05, or 87.3 per cent, and was due to the following causes:
>
> (1) Higher wage rates in effect under Decision No. 2 of the United States Railroad Labor Board.
> (2) Increased unit prices for materials.
> (3) More extensive maintenance work performed.
>
> The necessity for increased maintenance work in 1920 was largely the result of deferred maintenance growing out of the fact that a considerable portion of the property was acquired new or rebuilt under track elevation within the period 1911 to 1916, the natural result of this circumstance being that for a number of years accruing depreciation was greater than could profitably be offset with equal replacements. Hence a portion of the increased maintenance work in 1920 was due to normally deferred maintenance, and a smaller part due to circumstances which dictated a program of renewals below normal during the year 1919.
>
> The business handled during the years 1920 and 1919 was approximately the same, but the extremely adverse conditions from the standpoint of efficiency which prevailed in the transportation department during the first three months of the switchmen's strike, were productive of very expensive operation, whereas only a comparatively small amount of business was handled during that period.

BOSTON & MAINE.—*New Directors.*—At the annual meeting of the stockholders in Boston on April 13 the board of directors was enlarged to nineteen. The new members chosen were Woodward Hudson, vice-president and general counsel, and William J. Hobbs, a vice-president of the company.

CHICAGO, SAINT PAUL, MINNEAPOLIS & OMAHA.—*Annual Report.*—The corporate income account for the year ended December 31, 1920, compares as follows:

	1920	1919
Operating revenues	$26,489,817	.....
Operating expenses	23,767,081	.....
Net revenue from railway operation	2,722,736	.....
Tax accruals	1,461,938	.....
Uncollectible railway revenues	8,285	.....
Railway operating income	1,252,513	.....
Net rental income	37,717	.....
Net railway operating income	1,290,351	.....
Compensation for lease of road	815,603	$4,934,790
Compensation guaranty period	2,740,197	.....
Total non-operating income	3,785,649	.....
Gross income	5,075,879	5,031,160
Interest on funded debt	2,405,763	2,282,180
Total deductions from gross income	2,488,209	2,654,443
Net income	2,587,670	2,376,718
Dividends:		
Preferred stock, 7 per cent	788,151	788,151
Common stock, 5 per cent	927,835	927,835
Balance income for year	871,684	660.732

The annual report of the Chicago, Saint Paul, Minneapolis & Omaha will be reviewed editorially in an early issue.

CENTRAL VERMONT.—*Asks Authority to Issue Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $100,000 of 5 per cent refunding gold bonds to cover additions and betterments made since January 1, 1920.

CHICAGO GREAT WESTERN.—*Annual Report.*—A review of this company's annual report for 1920 appears on another page of this issue.

CHICAGO & ALTON.—*Authorized to Issue Stock.*—The Interstate Commerce Commission has authorized this company to issue (1) 1,753 shares of its cumulative four per cent prior lien and participating stock; (2) 514 shares of its non-cumulative four per cent preferred stock; and (3) 45 shares of its common stock, in exchange for stocks of the old Chicago & Alton Railroad Company and the Chicago & Alton Railway Company, which were consolidated March 8, 1906, into the present company.

CHICAGO & NORTH WESTERN.—*Annual Report.*—The annual report for the year ended December 31, 1920, shows the following comparative statement of income account:

	1920	1919	Increase or decrease
Operating revenues	$140,755,628	.....	$140,755,628
Operating expenses	130,252,212	$382,314	129,869,899
Net revenue	10,503,416	Def. 382,314	10,885,729
Tax accruals	7,557,889	970,000	6,587,889
Uncollectible railway revenues	28,276	.....	28,276
Railway operating income	2,917,251	Def. 1,352,314	4,269,565
Equipment and joint facility rents	2,217,599	.....	2,217,599
Net railway operating income	699,652	Def. 1,352,314	2,051,966
Non-operating income:			
Compensation from U. S. Government	3,803,000	23,201,016	—19,398,016
Compensation for guaranty period	16,509,185	.....	16,509,185
Gross income	23,811,563	24,140,709	—329,146
Interest on funded debt	10,440,294	9,273,859	1,166,435
Total deductions	11,265,706	10,052,605	1,213,101
Net income	12,545,857	14,088,105	—1,542,248
Sinking funds	86,603	105,522	—18,919
Dividends:			
Preferred stock (8 per cent in 1919; 7 per cent in 1920)	1,567,650	1,791,600	—223,950
Common stock (7 per cent in 1919; 5 per cent in 1920)	7,257,625	10,160,675	—2,903,050
Total appropriations	8,911,878	12,057,797	—3,145,919
Balance income for year	3,633,979	2,030,307	1,603,671

The annual report of the Chicago & North Western will be reviewed editorially in an early issue.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—*Authorized to issue promissory notes.*—This company has been authorized by the Interstate Commerce Commission to issue a promissory note for $500,000 to the Guaranty Trust Company of New York and one for $425,000 to the Central Union Trust Company.

DETROIT, TOLEDO & IRONTON.—*Asks Authority to Issue Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $182,000 of first mortgage 50-year, 5 per cent gold bonds due March 1, 1964, which are to be sold to Henry Ford and his associates.

INTERSTATE RAILROAD.—*Authorized to issue stock.*—This company has been authorized by the Interstate Commerce Commission to issue $338,000 of capital stock to reimburse the treasury for

expenditures made out of income and to pay for certain additions and betterments.

NEW YORK, NEW HAVEN & HARTFORD.—*Annual Report.*—The corporate income account for the year ended December 31, 1920, compares with 1919 as follows:

	1920	Increase or decrease
Railway operating revenues:		
Freight	$55,348,919	$6,111,956
Passenger	52,270,794	7,496,576
Total railway operating revenues	$123,512,310	$16,967,190
Railway operating expenses:		
Maintenance of way and structures	$20,654,480	$6,374,426
Maintenance of equipment	30,438,181	9,060,734
Traffic	756,798	215,709
Transportation—rail line	67,723,026	16,575,517
Total railway operating expenses	$126,346,384	$33,510,682
Net revenue from railway operations	Def. $2,834,073	—$16,543,492
Railway tax accruals	4,500,175	426,635
Railway operating income	Def. 7,349,935	—16,957,998
Non-operating income:		
Dividend income	$1,343,457	—$908,780
Income from funded securities	1,095,047	—121,333
Income from unfunded securities	1,823,996	565,331
Rent from locomotives, passenger train cars and work equipment	1,456,876	376,014
Income from lease of road	1,198,262	—4,473
Total non-operating income	$7,926,145	$78,625
Gross income	576,210	17,036,623
Deductions from gross income:		
Rent for locomotives, passenger train cars, floating and work equipment and balance for hire of freight cars	2,989,484	1,836,037
Joint facility rents	3,897,528	263,780
Rent for leased roads	5,852,016	—2,704
Interest on funded debt	10,341,382	706,027
Interest on unfunded debt	3,184,001	—461,644
Total deductions from gross income	$27,996,235	$2,459,394
Net income, excluding government guarantees	Def. 27,420,025	19,496,017
Less government guarantees (see note)	$22,798,519	$15,751,572
Net corporate income	Def. $4,621,506	$3,744,445
Ratio of operating expenses to total operating revenues	102.29	15.16
Ratio of operating expenses and taxes to total operating revenues	105.94	14.98

Note—Government guarantees include: Deficit in U. S. Railroad Administration operations, months of January and February; lap-overs audited from March 1 to December 31 applying to Federal control period; guaranteed standard return due from Director General for January and February; also amounts charged government under Transportation Act applicable to the guaranty period operations March 1 to August 31, inclusive, as shown on books as of December 31.

The annual report of the New York, New Haven and Hartford will be reviewed editorially in an early issue.

Stockholders Vote for Merger at Annual Meeting.—The stockholders at their annual meeting in New Haven, Conn., on April 20, voted favorably on the proposal to merge into the company five subsidiaries, the Central New England, the Harlem & Port Chester Railroad, the New England Steamship Company, the Hartford & New York Transportation Company, and the New Bedford, Martha's Vineyard & Nantucket Steamboat Company. The vote was 913,371 shares in favor, none against. The vote was the same on acceptance of the annual statement of the road for the year ended December 31, 1920; on ratification of an agreement with the director general of railroads in regard to equipment and on refunding at maturity next year a loan placed in Europe in 1907. The board of directors was re-elected.

NORFOLK & WESTERN.—*Board Chairmanship Ended.*—At the stockholders' annual meeting at Roanoke, Va., on April 14, the company's by-laws were amended so as to abolish the office of the chairman of the board, which office has been vacant since the retirement of L. E. Johnson, since deceased, on January 1, 1921.

OREGON, CALIFORNIA & EASTERN.—*Asks Authority to Issue Securities.*—This company has applied to the Interstate Commerce Commission for authority to issue $485,600 of bonds and 4,714 shares of stock.

PERE MARQUETTE.—*Asks Authority to Pledge Bonds.*—This company has applied to the Interstate Commerce Commission for general authority to pledge or sell $3,231,000 of first mortgage, 5 per cent gold bonds now nominally issued and held in the treasury. The company does not propose to sell the bonds at this time, but desires to issue notes from time to time to provide funds for its corporate requirements and desires general authority to pledge the bonds as collateral.

TEXAS SHORT LINE.—*Authority to Issue Bonds Denied.*—The Interstate Commerce Commission has denied the application of this company for authority to issue $175,000 of first mortgage bonds to retire maturing bonds, on the ground that the company's prospective earning power does not justify the fixed charges.

TOLEDO, ST. LOUIS & WESTERN.—*Asks authority to issue receiver's notes.*—The receiver has applied to the Interstate Commerce Commission for authority to issue $692,000 of receiver's certificates of indebtedness to be used as collateral security for the payment of a loan from the United States.

VALDOSTA, MOULTRIE & WESTERN.—*Sale Not Yet Approved.*—C. L. Jones, president of this company, who purchased the road at a foreclosure sale on April 9, is awaiting confirmation of the sale by Judge Evans of the federal court.

WESTERN PACIFIC.—*Authorized to Issue Bonds for Purchase of Sacramento Northern.*—The Railroad Commission of California has authorized this company to issue and sell at 85 and accrued interest, $4,180,000 of its first mortgage 5 per cent bonds. The bonds will be acquired by the Western Pacific Railroad Corporation and then distributed to bond holders of the Sacramento Northern, who have agreed to sell their bonds to the Western Pacific. The Western Pacific, as noted in the *Railway Age* of April 1 (page 866), has agreed to pay $27.50 a share for the first preferred stock of the Sacramento Northern, $15 a share for the second preferred and $6 a share for the common stock. It has also offered to exchange for the bonds of the Sacramento Northern, first mortgage bonds of the Western Pacific on the basis of $80 face value of the Western Pacific bonds for $100 face value of the Sacramento Northern bonds.

WHEELING & LAKE ERIE.—*Authority to Pledge Securities Denied.*—The Interstate Commerce Commission has denied this company's application for authority to pledge from time to time any bonds, stocks or other securities which are now or may hereafter be held in its treasury as collateral security for any short term notes which it may issue within the limitations prescribed by Paragraph 9 of Section 20-a of the interstate commerce act. The commission says it is required to make investigation of securities before authorizing their issue and it cannot with propriety issue general authority of the nature contemplated in this application.

Guaranty Certificates Issued

The Interstate Commerce Commission has issued additional certificates for partial payments to railroads on account of their six months' guaranty as follows:

		Previously paid
Louisville & Nashville	$4,750,000	$2,000,000
Kingston Carolina	1,500	.....
Georgia	300,000	.....
Long Island	450,000	.....
Rio Grande Southern	100,000	.....
New York, Ontario & Western	600,000	.....
Detroit, Toledo & Ironton	225,000	.....
St. Joseph & Grand Island	155,000	220,000
Louisville & Wadley	6,500	.....
New York, Philadelphia & Norfolk	300,000	256,000

Total payments to April 19 made by the Treasury under the provisions of the Transportation Act have been as follows:

(a)	Under Section 204, for reimbursement of deficits during federal control	$969,923.82
(b)	Under Section 209:	
	(1) To carriers to which final payment of the guaranty has been made under paragraph (g) including previous advances under paragraphs (h) and (i)	1,311,700.63
	(2) For advances under paragraphs (h) and (i) to carriers as to which a certificate for final payment has not been received by the Treasury from the Interstate Commerce Commission	263,235,874.00
(c)	Under Section 212:	
	(1) For partial payments in respect to the guaranty provided in Section 209	123,311,490.05
	(2) For partial payments in respect to the reimbursement for deficits during the period of federal control provided in Section 204	418,000.00
(d)	Under Section 210, for loans from the revolving fund of $300,000,000 therein provided	193,685,137.00
	Total	$582,932,125.50

Dividends Declared

Central of New Jersey.—$2.00, quarterly, payable May 2 to holders of record April 29.

Pullman Company.—$2.00, quarterly, payable April 30 to holders of record May 16.

Railway Officers

Executive

W. C. Morse, whose appointment as vice president of the Louisiana Railway & Navigation Co., with headquarters at Shreveport, La., was announced in the *Railway Age* of April 1 (page 915), was born in 1867 at Vineland, Mo. He was educated in the public schools and entered railway service in 1883 with the St. Louis, Iron Mountain & Southern (now the Missouri Pacific). He served the Iron Mountain as a telegraph operator and station agent until 1888 when he was promoted to train dispatcher at De Soto, Mo. Ten years thereafter he was promoted to chief dispatcher with the same headquarters. He resigned that position in 1902 to enter the service of the Atchison, Topeka & Santa Fe in a similar capacity at Chillicothe, Ill. In 1906 he returned to the service of the Iron Mountain as trainmaster at McGee, Ark. The same year he was promoted to superintendent of the Natchez division. Subsequently he served as superintendent of the Memphis, Central and Missouri divisions, until he resigned on April 1, to enter upon his new duties. Mr. Morse's name will be recalled as that of a contributor to these columns on interesting questions connected with operating problems.

W. C. Morse

H. C. Nutt, formerly president of the Central Equipment & Coal Commission, an organization having charge of all bituminous coal mining and distributing operations in Silesia, has been elected president of the Monongahela and the Pittsburgh, Chartiers & Youghiogheny, with headquarters at Pittsburgh, Pa. Mr. Nutt was born at Council Bluffs, Ia., November 12, 1863. He was graduated from the Sheffield Scientific School, Yale University, in 1883, and began his railroad career as a rodman for the Burlington & Missouri (now a part of the Chicago, Burlington & Quincy). He served in various capacities in the engineering department of that road and, in 1889, was appointed trainmaster at Alliance, Nebr. In 1892, he was promoted to assistant superintendent at Edgemont, S. D., and a year later was transferred to Sheridan, Wyo. In 1900 he became assistant superintendent of the Chicago, Burlington & Quincy with headquarters at Burlington, Ia. Three years later he was promoted to superintendent and the following year to general superintendent of the Iowa district. In 1905 he was transferred to the Missouri district and the following year became general superintendent for the Michigan Central, with headquarters at Detroit. In 1907 he went with the Northern Pacific as general manager of the western lines and, in 1909, was elected fourth vice-president. Mr. Nutt left the Northern Pacific in 1912 to become general manager of the Los Angeles & Salt Lake with headquarters at Los Angeles, Cal. During the war Mr. Nutt was commissioned a lieutenant colonel and served in France as deputy director general of the American military railways. Upon his return to this country he resumed his position as general manager of the Los Angeles & Salt Lake. He resigned this position early in 1920 to become president of the Central Equipment & Coal Commission in Silesia.

H. C. Nutt

Operating

James M. Wachter, who has been appointed superintendent of terminals of the Mobile & Ohio and the Southern at Mobile, Ala., was born on March 7, 1863, at Bolivar, N. Y. He was educated in the public schools and entered railway service in 1880 as a switchman for the Louisville & Nashville at Birmingham, Ala. He later served the same road as a brakeman, conductor and general yardmaster until 1905, when he resigned to enter the service of the Mobile & Ohio as general yardmaster. From 1911 until 1914 Mr. Wachter was superintendent of terminals of the International & Great Northern at Houston, Tex. In 1914 he left the service of that company to become general yardmaster of the Mobile & Ohio. He was serving in this capacity at the time of his recent promotion.

E. W. Scheer, whose appointment as general manager, Eastern Lines, of the Baltimore & Ohio was announced in the *Railway Age* of April 15 (page 961), was born on April 28, 1875, at Zaleski, Ohio. He entered railway service February 10, 1890, as a messenger in the office of the superintendent of the Cincinnati, Washington & Baltimore (now a part of the Baltimore & Ohio). From May 1, 1890, to December 15, 1895, he was employed as a clerk and stenographer for the Baltimore & Ohio Southwestern. From the latter date until January, 1899, he was chief clerk to the division superintendent and then served as secretary to the vice-president and general manager until 1906. From then until 1912 he served consecutively as chief clerk to the general manager and assistant secretary and chief clerk to the general superintendent at Cincinnati. He then became assistant to the general superintendent of the same road at Cincinnati. The following year he became superintendent of the Illinois division with headquarters at Flora, Ill. In 1915 he was transferred in a similar capacity to the Indiana division at Seymour, Ind. In July of the following year he was promoted to general superintendent with headquarters at Cincinnati. In October of the same year he was transferred to the Northwest district of the Baltimore & Ohio and, in February, 1920, to the Maryland district, which position he held at the time of his recent promotion.

E. W. Scheer

Coincident with the abolishment of the Burlington division of the Chicago, Burlington & Quincy the lines from Albia to Des Moines, from Burlington to Tracy, and from Winfield to Washington have been consolidated with the Ottumwa division, while the lines from Fort Madison to Batavia and from Carthage Junction to Quincy have been consolidated with the Hannibal division. The following appointments have been made: **N. H. Young,** superintendent of the Burlington division, has been transferred to the Brookfield division, with headquarters at Brookfield, Mo., succeeding **W. F. Giles,** who has been

transferred to the Wymore division, with headquarters at Wymore, Neb., succeeding **F. D. Gurley,** who has been appointed assistant superintendent with the same headquarters. Mr. Gurley succeeds **H. J. Hoglund,** who has been appointed trainmaster with headquarters at Chicago. **C. W. Orbin,** chief dispatcher on the Burlington division, has been assigned to other duties and the position abolished. The changes were effective April 16.

Traffic

Harry C. Stauffer, whose appointment as general freight agent of the Philadelphia & Reading was announced in the *Railway Age* of April 15 (page 962), was educated in the common schools and in preparatory schools. Upon completion of his education he entered the service of the Philadelphia & Reading as agent at Kimberton, Pa. Later he served as agent at Byers, Pa., and then at Douglassville, Pa. From the latter position he was transferred to the position of chief clerk at the 31st street and Girard avenue station, Philadelphia. After serving at that point for some time he was appointed freight agent at Chester, Pa., and then freight agent at Reading, Pa. He remained on duty at this point for seven years and went to Philadelphia in 1910 as division freight agent in charge of the New York division and the Atlantic City Railroad. He continued in this position during the time the railroads were operated under federal control. When they were returned to private ownership on March 1, 1920, Mr. Stauffer was appointed general coal freight agent. He held this position until the time of the present appointment.

H. C. Stauffer

R. H. Morris, general western freight agent of the Southern, with headquarters at Chicago, has been promoted to freight traffic manager, with headquarters at Cincinnati, Ohio, effective April 15. Mr. Morris was born on February 25, 1866, at Xenia, Ill., and entered railroad service in 1884 as a telegraph operator on the Louisville, Evansville & St. Louis, at Fairfield, Ill. In 1886 he was appointed secretary to the general manager at Louisville, Ky., where he remained until 1887, when he was transferred to Evansville, Ind., as local agent. Two years later he accepted an appointment as commercial agent for the Louisville, Henderson & St. Louis, with headquarters at St. Louis, Mo., where he served until 1898, when he returned to the service of the Louisville, Evansville & St. Louis, as general agent, with headquarters at Evansville, Ind. When the Louisville, Evansville & St. Louis was taken over by the Southern, Mr. Morris continued to serve as general agent at Evansville. In 1905 he was appointed commercial agent, with headquarters at Cincinnati, and in 1909 he was transferred to Chicago. He was promoted to assistant general freight agent, with headquarters at Louisville, Ky., in February, 1917. In March, 1920, Mr. Morris was made northwestern freight agent, with headquarters at Chicago, Illinois.

Engineering, Maintenance of Way and Signaling

C. R. Mee has been appointed chief engineer of the Louisiana Railway & Navigation with headquarters at Shreveport, La., effective April 8.

W. A. Duff, assistant chief engineer of the Moncton Division of the Canadian National Railways, has been appointed engineer of standards with headquarters at Toronto, effective April 1.

Purchasing and Stores

J. F. Blasie has been appointed district storekeeper of the New York Central at Depew, N. Y., succeeding H. L. Grandy, transferred.

A. L. Prentice has been appointed district storekeeper of the New York Central, with headquarters at Elkhart, Ind., succeeding C. F. Heidenrich, who has been transferred to Collinwood, Ohio, in the stores department.

General

MISSOURI—ILLINOIS

The Missouri-Illinois which was organized to take over the operation of the Illinois Southern and which established its general headquarters at Bonne Terre, Mo., in February, has announced the appointment of the following officers:

F. J. Thomure	Vice-president and gen'l mgr.	Bonne Terre, Mo.
W. G. Patton	Assistant to vice-president	Bonne Terre, Mo.
V. M. Johnson	Auditor	Bonne Terre, Mo.
M. Rittmaster	Assistant auditor	Bonne Terre, Mo.
E. L. Kimmel	Assistant general manager	Sparta, Ill.
C. M. Swan	Traffic manager	St. Louis, Mo.
F. P. Sackbauer	Ass't gen'l fr't and pass. agt.	St. Louis, Mo.
H. Schantl	Chief engineer	Bonne Terre, Mo.
C. E. Morrow	Assistant chief engineer	Sparta, Ill.
T. A. Roussin	Master mechanic	Sparta, Ill.

Obituary

M. M. Kirkman, former vice-president of the Chicago & North Western, died of apoplexy at the Henrotin Memorial Hospital, Chicago, on April 18. Mr. Kirkman was born in Morgan County, Ill., on July 10, 1842, and entered railway service in 1857 as a messenger for the Chicago & North Western. From 1857 to 1861 he served in the telegraph and traffic departments and as a train dispatcher. In 1861 he was made auditor of traffic accounts. He was promoted to assistant general accounting officer in 1865, and in 1867 was made general accounting officer. In June, 1870, he was given additional jurisdiction over the duties of local treasurer, and continued this work up to the time of his retirement from railroad service. He was promoted to controller in June, 1881, and was elected vice-president in November, 1889. Mr. Kirkman retired from active railroad service in April, 1910, after 53 years' continuous service with the North Western. He was the author of a number of treatises on transportation subjects, including "The Science of Railways," published in 1894.

Lester G. French, for thirteen years editor and assistant secretary of the American Society of Mechanical Engineers, and manager of the journal "Mechanical Engineering," died on April 18 at the French Hospital, New York. Mr. French was born at Keene, N. H., in April, 1869. He received his technical education at the Massachusetts Institute of Technology, from which he was graduated in 1891 with the degree of S. B. He served the year 1891-92 with the Cranston Printing Press Company as draftsman, and then became connected with the International Correspondence Schools, Scranton, Pa., as instructor in mechanical engineering. Leaving this institution in 1895, he went to Providence, R. I., where he entered the employment of the Builders Iron Foundry as assistant to the superintendent. In 1897 he became editor-in-chief of "Machinery," continuing in this position until 1906, when he resigned to take up the publication of technical books, among them being one of the earliest American treatises on the steam turbine, of which he was the author. In 1908 he was appointed editor of the publications of the American Society of Mechanical Engineers, which organization he served to the date of his death. Mr. French had been a member of the American Society of Mechanical Engineers since 1899.

THE SENATE has decreed another investigation of the railroads. Does the trouble with Congress in framing regulative railroad legislation lie in a want of the facts of the situation or does it lie in an incapacity of Congress to deal with the situation in the light of the known facts?—*New York World.*